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HOW TO MAKE POULTRY KEEPING PAY



Published By
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Des Moines, Iowa.

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INTRODUCTORY

Many times every year those who have done business with me from year to year have asked why I did not write a book telling how to make poultry as profitable as possible. I have always felt that I should wait to do this until I had learned more of the secrets of success with poultry, but I find that if I were to wait until I knew everything that might be learned I would never get a book on the subject written.

After giving the matter considerable thought I concluded that I might be able to write a little book telling how to make money out of poultry and how to avoid the mistakes which wreck the hopes of the beginner so often.

With this in view I present in this little volume in its most condensed form what I have learned the many years that I have been breeding high-class poultry. Some of the methods which I give are my own and have never before been published; other methods are those which I did not originate but which I have used with benefit.

The object in writing this book has been to set down in the plainest and most easily understood language every essential fact which might help the beginner to get the greatest possible profits from his poultry.

I believe I may say truly that with this book as a guide any one interested in poultry will be able to conduct the poultry business with success.

I have not attempted to do fine writing but to write so plainly that any one who can read can understand and I offer this book in the hope that it may help the beginner over hard places and the expert poultryman in some of the difficulties he meets with.

I have been a poultry breeder since my boyhood and this book contains the things I have learned by actual, practical experience in the poultry yard.

FRANK FOY.

Des Moines, Iowa, October, 1910.

Chapter I

THE PROFITS OF POULTRY KEEPING.

When considering a start in a new and unfamiliar business the wise man counts the cost as well as he is able, seeking the experience of others as a basis from which to make his estimates.

The poultry-breeder as a rule begins the poultry business because he has a natural liking for fowls. It is a curious fact that thousands of people who care very little about other classes of live stock are fond of poultry. They like to have domestic fowls about them, to watch them grow and develop and to minister to their needs.

Thousands of people engaged in every line of business look forward to the time when they can own a plot of ground and raise chickens as a business or as a side line with their regular occupation.

It is very easy to overdo the matter of estimating the profits from poultry. If one is planning to keep only a dozen or twenty or even 100 fowls the element of time need hardly be counted. Many a professional or office man or shop operative keeps as many as 100 fowls and gives them the best care while attending to some regular, money-earning work of some other kind. It is only when the flock is to be above 100 in number that time needs to be counted as part of the cost of keeping the flock.

This raises the question of how many fowls can one man attend to. This must be answered in various ways as we must consider the climate and the conveniences around the poultry house. It is generally estimated that one man can care for 1000 fowls without working too hard, but there are cases, where one man does much more than this because every convenience for making the work as light as possible has been installed.

As an example of what one young man can do and is actually doing every day on a poultry farm there comes to mind a young man in Virginia who has built up a big poultry business without outside help and every year adds to the number of his fowls, doing all the work without help.

This young man keeps 1400 hens and gives them good care, marketing the eggs and poultry himself and does not think he is overworked. He has his poultry house arranged so he can take the feed to his hens in a truck which runs on a miniature railway. He feeds entirely by the hopper method and gives his hens free range.

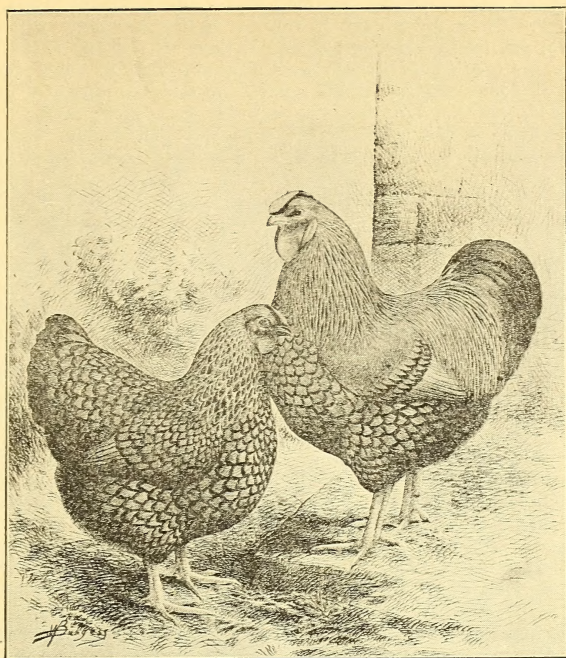
Here is his account for last year:

Wheat, 900 bushels at \$1.10	\$ 990
Corn, 800 bushels at 75 cents.....	600
Oats, 600 bushels at 55 cents.....	330
Oyster shells, 8000 pounds at \$10 per ton.....	40
Mica grit, 2000 pounds at \$14 per ton.....	40
Beef scap, 6000 pounds at 3 cents per pound.....	180
Egg cases, 300	30
Coal oil and gasoline	40
Total expense	\$2,224

Receipts.

528 cases eggs	\$4,752
1,100 hens sold	617
1,200 cockerels sold	311
Total receipts	\$5,680

The eggs are sold at 30 cents per dozen in Washington, D. C. The price received for the hens and surplus cockerels shows that they were all sold at market prices, so this account shows very fairly what one young man is doing



GOLDEN WYANDOTTES.

The Golden Wyandottes are an exact counterpart of the White and Silver Laced, the only difference being in color. They are fine layers the year round if properly cared for. The color in the Golden Wyandotte is a golden bay in place of the white lacing in the Silver Laced Wyandottes. This breed has many friends, and is a good variety for anyone to breed who wants beautiful fowls. There are very few breeds that will breed as true to color as the Golden Wyandottes. They make good mothers and good sitters, but are not persistently broody. Chicks are quite hardy and mature early. Standard weights are as follows: Cock $8\frac{1}{2}$ pounds, cockerel $7\frac{1}{2}$ pounds, hen $6\frac{1}{2}$ pounds, pullet $5\frac{1}{2}$ pounds.

in the poultry business. For his work with 1,400 hens he receives in a year a profit of \$3,456. This is a salary that must be perfectly satisfactory to him and shows what may be done by any one who gives his hens proper attention. The hens in this flock averaged 136 eggs each, which shows that they are fairly good layers and that the average good hen from a bred-to-lay strain will bring its owner a profit of more than \$2 each.

The next question that comes up is concerning the acreage necessary to keep a flock of a given size. This is a matter on which there is much disagreement. I know of poultrymen who keep as high as 250 of the smaller breeds on an acre and maintain them in good health and vigor. I know of one particular case where nearly 500 hens are kept in good shape on an acre. The land in this case is well shaded and lies so water never stands on it. The hens are given plenty of green feed and pure water and come through the season in fine shape.

As a rule it is probably best to keep about 200 hens to the acre where it is necessary to keep them confined, although it is only fair to state that more than this number may be kept without crowding.

A noted poultryman in an eastern state keeps about 2,000 hens, giving them free range. They have perfect liberty to wander over 200 acres of land if they want to, yet he says he rarely finds a hen off the ten acres that surround the poultry houses. A properly fed hen will not wander very far from home. She needs out of door exercise because both the exercise and the direct sunshine are good for her, but she will not go very far from nest and perch if she has all her requirements in the way of feed supplied. This is especially true where the hopper system of feeding, which is described in another place in this book, is followed.

It will be noticed that the prices for feed named above is quite above the figures that would obtain in Iowa or any other western state. No account is made for green feed because the hens find what they need in the range they have to roam over, but wheat at \$1.10, oats at 55 cents and corn at 75 cents will seem very high to the poultryman of the mid-west. The price received for eggs is probably somewhat higher than the average that could be obtained in the mid-west, but this is balanced by the high cost of feed, so the profits would be about the same in either place. An income of above \$2.50, average, from 1400 hens shows that the poultry business is the most profitable that can be taken up. The account of sales of hens shows that they were worth about 56 cents each. This means that each hen produced more than four times her own value in a year.

These figures could be duplicated in any state in the Union and I do not consider them at all out of the way. I give them because they are the figures of a disinterested party, made up from the items in a cash book and so well authenticated that they can not be disputed.

I could give numerous instances taken from letters from my customers to show that where the selling of breeding stock and eggs for hatching is combined the figures show larger returns per hen than is given in the case I have given.

If the beginner starts in the business with high-class hens from good, bred-to-lay strains he will find that the demand for fowls for breeding and eggs for hatching will take a large part of his surplus stock at prices so much above the market price that his average profit from each hen will be doubled. I do not hesitate to say that where the fancy and utility sides are both kept in view by the poultryman that a profit of \$5 for each hen is easily reached, and that 100 hens kept on a town lot may be made to bring their owner a clear profit of \$500 in a year. As an example of what may be done where the fancy poultry business is made a specialty I know of a young man in Pennsylvania who from four town lots sold poultry and eggs to the value of \$1200 in one year. He began by purchasing good stock, bred it with care, began to show at fairs and poultry shows and win prizes and in the end built up such a reputation that his income from his little plot of land, 100x125 feet, was larger than that of many farmers owning 100 acres of land or of many business men with \$10,000 invested in merchandise.

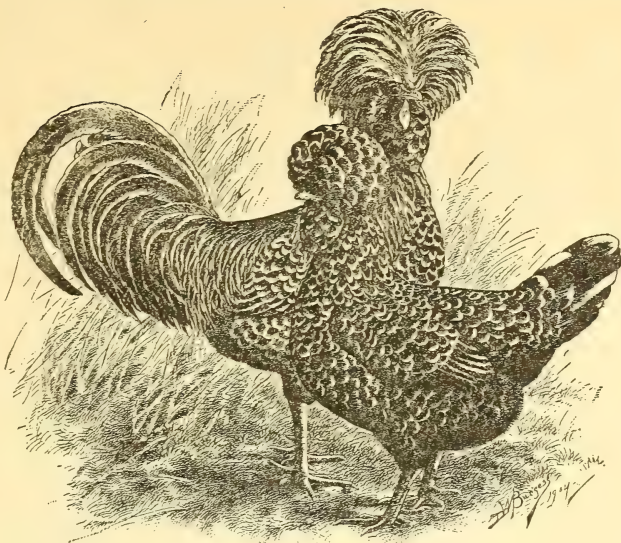
All over the country on little farms, on town lots and out on the larger farms may be found poultry-keepers who make a good living out of keeping poultry and do not work themselves into a premature old age before they have reached middle life. Poultry-keeping is pleasant, profitable and honorable. Every poultry-keeper should be proud of his business for it is among the most important of our rural industries and grows to be of greater importance all the time.

Chapter II

THE ADVANTAGES OF POULTRY-KEEPING.

I think it best to say something about the advantages of the poultry business because this book will no doubt reach many people who have not yet fully made up their minds as to the advisability of taking up poultry raising as a business or as a part of their business.

I want to say most emphatically that I am a thorough believer in the business of raising and selling poultry for the very good reason that whatever I have in the way of houses, lands or money has been made by breeding and



HOUDANS.

The Houdan is the leading race of France, and is held in high esteem as a table fowl. It was introduced into this country in the early '60's. It is quick to grow, making broilers at an early age. Pullets lay early, eggs generally prove very fertile, nearly every egg producing a chick under favorable conditions. Hens three to five years old lay as well as when they are young. Eggs are large and pure white. They bear confinement well and are very contented in restricted quarters. Their flesh is of perfect quality, very fine flavored, and in dressing there is a small percentage of waste, being only about 1-8 part. They are hardy of constitution, adapting themselves to all kinds of climates and conditions, small eaters and good winter layers, if given any kind of care and attention. Cock 7 pounds, cock-el 6 pounds, hen 6 pounds, pullet 5 pounds.

selling poultry. The reader will pardon me for referring to my personal affairs but I want to say by way of explanation that I began life with as near nothing but my two hands and my desire to succeed as any other man in the country. I had a natural fondness for poultry but I had no opportunity to make any sort of a start until I earned the money myself. I worked for other poultrymen, invented an incubator and finally saved enough to make a modest start. From the beginning I have built up a business of which I am proud and I have the very best opportunity to know just what advantages are possessed by those who take up the breeding of poultry for market or for fancy.

In the first place poultry-keeping is a business which is very flexible. By this I mean that it will pay a big profit whether a large or a small amount is invested in it. This makes it adaptable to every condition in life. The man who starts out to be a merchant must have a considerable sum of money before he can begin, unless some one will give him credit which is the same thing as money under certain conditions. The professional man must spend considerable money and take several years of time before he can begin to make a living. The farmer must have land for, even if he rents land he must pay the owner for its use and invest quite a sum in teams, tools and equipment. I do not call to mind a single other business besides poultry-keeping in which a man can start with a small capital and build up within a year or two a business which will return profit enough to keep a family in comfort and increasing luxury. A few fowls properly handled may be used for the foundation of a large flock



SINGLE COMB WHITE LEGHORNS.

The White Leghorns are adapted to any part of this country, and profitable wherever kept. Like its Brown ancestors the White Leghorn is an "egg machine" that works constantly and at high speed. The eggs are pure white, weigh an average of two ounces each, and are produced the year through, except during the molting period, and even then the White Leghorns do not stop laying altogether. The White Leghorn is a non-sitter, very few of the hens ever offering to sit, and pullets begin to lay at five months or sooner. The beaks, shanks and skin are a bright yellow, the comb and wattles bright red and large, and ear lobes are pure white and the eyes bright reddish bay. They are good foragers, hardy, alive every minute, a flock of the Single Comb White Leghorns earns money for its owner every day in the year.

within a very short time, if modern methods are practiced. Say the beginner buys a single pen of fowls, a male and four females. If he uses an incubator and keeps the hens from sitting they will produce enough eggs in one season, during the hatching season, to give the owner at least 100 pullets for future laying. During the remainder of the year these four hens will pay two prices for the feed they eat in the eggs that may be sold in the market. In the meantime the chicks that have been hatched are growing up and when about twelve weeks of age the cockerels may be sold for fryers for enough money to pay for all the feed all the chicks have consumed up to that time and enough more to buy all the feed the pullets will consume up to the time they begin to pay a profit themselves. If care is taken to buy good stock the surplus cockerels may often be sold for from two to four times the market price and thus add to the returns from the experiment. Where good care is given the fowls an investment of this kind often pays two or three hundred fold the first year. After 100 laying hens are in the flock progress is easy. The best may be selected as pullets come on to take their place and the quality of the flock improved all the time. All this time the flock is paying a profit and the owner is learning how to make the most of the products of his poultry yard. If he has ambition he will soon find that his poultry is paying him well enough that he can cut loose from other forms of employment and become his own master, independent and on the sure road to building up enough so that he will not need to have any fears of the future.

The Poultry business is one in which almost any one can engage. The work is so light that women, children and semi-invalids can do most of it without overtaxing their strength. It is out of door work where those in delicate health

can breathe the pure air and get soaked in sunshine, which is the best medicine ever taken by man. The young and the old, the rich and the poor have an equal chance in the poultry business as no monopolist can secure it to himself nor can any trust take all the profits. The farmer accepts for his grain what the elevator trust or the board of trade speculator says he shall get, the breeder of live stock is hard and fast in the clutches of the big packing house trust, the man in almost every other line of work or business must bow to some trust or monopoly, but the poultry business has never been gobbled up by trusts or monopolies, nor will it ever be. A business in which the smallest breeder can successfully meet any competitor will always be open to every one and always be free to any one who desires to engage in it.

The poultry business earns money every week in the year. Once a start has been made the poultryman is producing something which is in demand in every place in the Union, no matter how remote from the great markets it may be and the price never falls below the profit bearing mark. Poultry and eggs are salable any day in the week anywhere in any country on earth, a statement which will not apply to any other business except possibly the dairy business, which requires large capital to conduct. The poultry-breeder has eggs or poultry to sell every day in the year and he can sell for spot cash. The man who breeds live stock must wait six months to three years to get his returns and the farmer must plow and sow and then after months of waiting harvest and market his crops while the poultryman has been harvesting his crops of eggs and poultry and getting his money from day to day. Today he buys feed and tomorrow his hens pay for it and pay twice the original price so the money is turned over day after day always at a big profit, which is the surest and fastest way of making money known to man.

The prices paid for poultry are about the same year after year, except that for fifteen years prices have regularly been higher at a certain season in the year than they were before at that season. This regular and consistent increase in price is the most promising part of the poultry business. It shows that demand is going ahead of supply and the reason for this is that the stock of meat-producing animals in this country is growing smaller and smaller every year. There are thousands fewer cattle and millions fewer hogs in this country than there were a few years ago and all the time we see a large increase in population. Instead of keeping up with the growth of our population the number of meat-producing animals grows actually less all the time. The result is increasing prices for all kinds of meats and the people turn to poultry and eggs to supply the shortage and prices keep climbing higher and higher as the years go by. There are many other advantages that I might name, such as the comparative small space required, the light work, and the ease with which the details of the business are learned, but I must pass on to the actual work of keeping fowls in a way that will make possible the largest profits.

Chapter III

LOCATING THE POULTRY YARD.

In almost every case the poultry yard must be located wherever there is room for it rather than in the place best suited for it. This is because keeping poultry is usually the last thing that is arranged for in building the house and other outbuildings. Most people buy or build their houses with reference to the street or road or the surrounding houses, without giving any consideration to the poultry yard. Where a place is bought with poultry-keeping in view a selection may be made so as to locate the poultry yard in a suitable place, but this is not always the case and it may be said that the poultry plant, be it large or small, must be made to adapt itself to the location, rather than being located in the most suitable place. Fortunately it is entirely possible to so arrange a poultry plant that it may successfully be operated, no matter how it may be located.

The best place is on a southern or southeastern slope, the surface dropping just enough to give perfect drainage. If the slope is too steep there will be a tendency for the soil and all litter to gradually work to the lowest point and accumulate there. Even perfectly level land may be used if it be of a porous gravel texture or if it can be perfectly drained. I insist on a poultry



WHITE PLYMOUTH ROCKS.

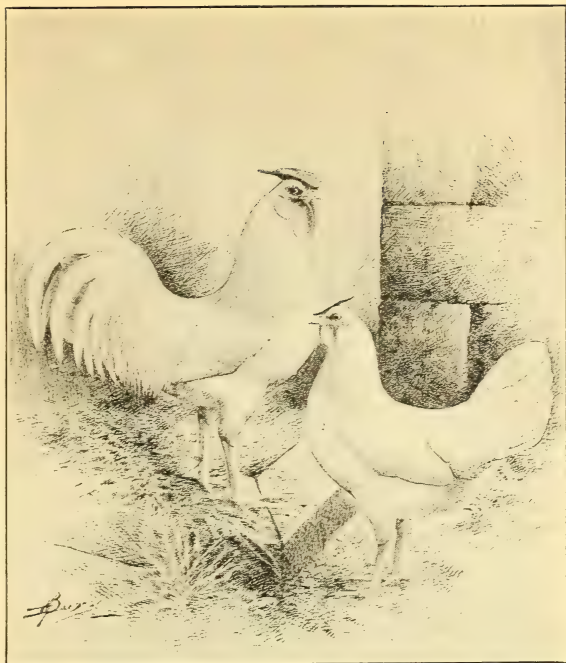
The original White Plymouth Rocks were sports from the Barred Plymouth Rocks variety, from which they differ only in color of plumage, which is snow white. Combs and wattles are beautiful red, the legs, beak and skin are rich yellow. They breed true to color. Their large size, stately carriage and beautiful color is admired by all. Standard weights are as follows: Cock 9½ pounds, hen 7½ pounds, cockerel 8 pounds, pullet 6½ pounds.

run where the water does not stand. Chickens do not mind damp feet very much if they have a dry house to retire to at will, but mud in the poultry yard is an abomination that soon become a breeding place for disease and filthy beyond description.

An eastern slope is not bad and a western one may be allowable, but never locate a poultry house where the front must face the north, except in those very uncommon places where mountain valleys are so opened that the coldest winds blow from some other direction. Other things being at all favorable the house should front to the south, as that gives early and late sunlight and the full light of the sun at midday, a very important consideration because every poultry house should be built so the sunshine can reach every part of it every sunny day. There is no disinfectant as good as unrestricted sunshine and the poultry house so built that the sun can shine directly on every part of it every sunny day will never become the harbor for disease-breeding germs as long as it is kept reasonably clean and the floor can be kept dry.

In another place in this book I give several plans for poultry houses and it will be noticed that I believe in big windows. This is because my experience has been that light, air and unrestricted sunshine go farther in maintaining the health of fowls than all the medicines in the list.

A direct eastern exposure is very good in some places, especially in the



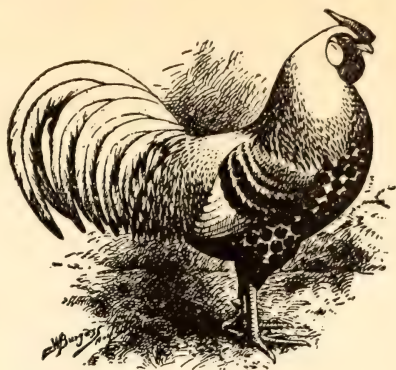
ROSE COMB WHITE LEGHORNS.

Rose Comb White Leghorns are identical with the Single Comb variety, except they have a low rose comb. They begin laying when about four months old, and if properly attended to will furnish eggs the year round. No fowl shows greater beauty on a green lawn than the White Leghorns, owing to their graceful style, fine, large, red combs and white plumage.

dry parts of our arid western states. In these states the air is so dry most of the time that germ life finds no chance to flourish in the poultry house because the droppings dry almost as soon as they are deposited, and dampness is the partner of darkness in producing germ life. In the arid states the middle of the day in summer time is likely to be very hot, so direct sunshine into the poultry house would make it quite uncomfortable under the most favorable circumstances. The sun will shine into such a house until about ten in the morning and, as the sun shines 300 days in a year in these states, with hardly a cloud in the sky, and shines much of the time during the remainder of the year, the house built to front the east will get quite as much sunshine as one facing directly south would in the midwest or eastern states. It is not advisable to front the house to the southwest in any part of the country as this direction is the one from which many chilling winds blow both east and west.

The poultry yard should be located so as to give a sunny run for the fowls. I do not insist on a large run for poultry because I do not believe it is absolutely necessary. Of course if a large run or even an unlimited range is open to the fowls they will secure a considerable quantity of natural feed such as green stuff, seeds and insects but I have reason to doubt very much whether a hen that runs at large does as well or lays as many eggs as one that is kept yarded and is properly supplied with feed and water. The hen that runs at large uses up a large part of the feed she consumes in the energy required to run about all day, whereas the hen that is kept yarded uses her energy in the production of eggs.

The yard should be dry. I repeat this because I consider it an important



SILVER SPANGLED HAMBURG COCK.

The Hamburg unquestionably enjoys the distinction of being the first fowl bred for exhibition purposes. Hamburgs in all their varieties are beautiful. As layers they compare favorably with our best bred Leghorns and like the Leghorns are classed as non-sitters. As table fowls they are not much in demand, being rather small and having blue legs. They are seldom selected by the purchasers at our market stands.

arranged with reference to shade for the fowls. The very best shade is the one nature provides by growing trees. The shade of a tree is cooler than any shed or other artificial shade made by man, although with a little pains it is quite possible to make a very good imitation of nature's shade. The shade of a tree is made up of the shadows of thousands of leaves among which the air circulates keeping the temperature down as low as possible under the condition, while the shade of a roof merely keeps the sunshine out while the heat comes through almost as freely as it would were the roof not there. In making an artificial shade this should be kept in mind. A double roof with space enough between the two parts of it to allow air to circulate freely makes a cool shade or a shed with a thick straw roof will keep the heat out.

Keep the yard clean as well as the house. This matter should be considered in locating the poultry yard. The droppings from the poultry house and the rakings from the yard will need to be disposed of in some manner that will prevent them from making an offensive appearance and a way to make this disposition of the litter and droppings should be provided when the yard is located.

Convenience to the house is another thing to be considered. A poultry house may be located quite near the dwelling if it is kept neat and clean, and where the good wife or the children are to take any part in caring for the fowls their convenience should be consulted. At the best it requires a good many steps during the year to care for a flock of fowls and any saving in distance will amount to a good many miles before a year's work is ended.

Where the land is level and likely to become water-logged during the early spring months it is a good plan to cover the surface with three or four inches of moderately fine sand. The surface water will disappear in this sand and the fowls will have a dry place on which to walk while the more retentive soil beneath is slowly absorbing the water held by the sand. One poultryman who lives in a large city and keeps about three hundred fowls on about one-third of an acre, covers his yard a foot deep with sand and shovels the grain into it leaving the hens to dig it out. Every fall this coat of sand is removed and another put on and the owner gets the work done for nothing. A thrifty German gardener has discovered that the sand from these yards is a very

good fertilizer for his gardens and hauls the sand away replacing it with fresh for the benefit he gets from the fertilizing material in that taken away.

If there is room enough to make yards twice as large as absolutely necessary it is a good plan to make two yards for each flock. In one may be sown any quick-growing vegetation which the fowls like and when it is large enough for the purpose the fowls may be turned into this half of the yard and allowed to eat down the vegetation while a similar crop is grown in the half just vacated. A still better plan is to sow the vacant yard with rape or lettuce and cut the vegetation, feeding it to the fowls. When this is done a new growth at once springs up and the plants will renew themselves several times during the summer. This plan requires more work but less seeding than the first one..

While we should always select the best available location for the poultry house and yards, no one need remain out of the business of keeping poultry for I have seen very successful poultry plants located in places which naturally did not seem at all favorable. Anyone who desires to keep poultry will be able to make a success of the business in any location where the yards can be kept dry the larger part of the time. Poultry is so adaptable that it will flourish in a locality which at first seems unfavorable if it is given proper care. There are hundreds of successful poultry plants all over the country located that they seem in very unsuitable places. Indeed many times the poultryman who has the grit to begin and succeeds does so simply because others think it not worth while to begin because of unfavorable conditions. In these cases the enterprising man finds himself in control of the market and when others try to follow after him they have merely what he has left.

If the beginner will start with good stock by either buying fowls or eggs as a beginning, he will soon find that his investment is paying a large profit and will be able to overcome any little natural obstacles which may confront him. I insist on good stock because it is the only kind any one should keep, and this book is written to help those who help themselves by starting right.

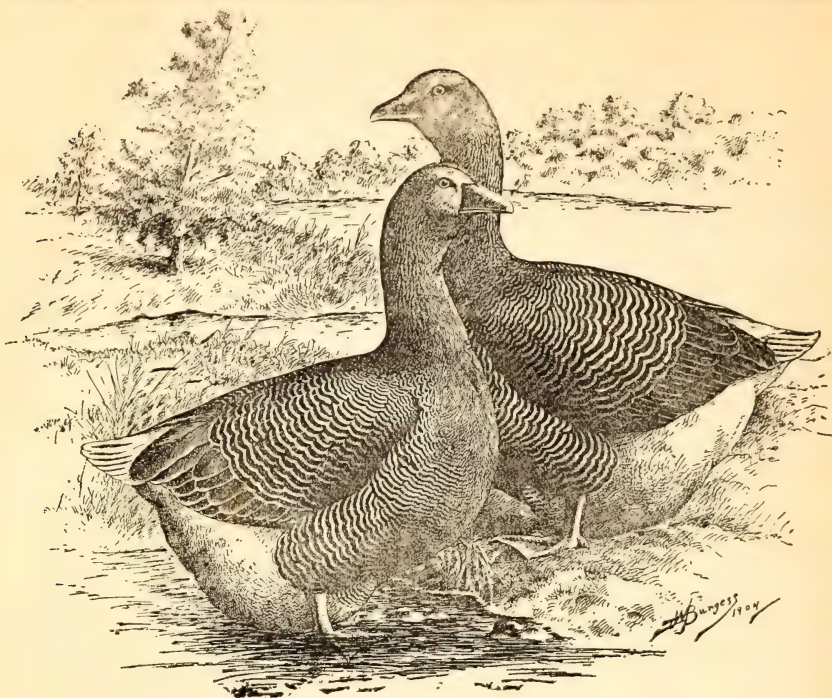
Chapter IV

POULTRY HOUSES AND PLANS.

Having settled on the location of the poultry yard the next thing is to consider housing the fowls. This is a very important subject and one on which much advice has been given, but of late years the whole subject of housing poultry has been very much simplified. Formerly it was thought that in order to get winter eggs the poultryman must make his poultry house as nearly air tight as possible or even furnish artificial heat for his hens. I very much doubt if there is a single artificially heated poultry house in this country today that is owned by a practical and successful poultry-keeper.

It was found that the air tight style of houses was almost invariably damp in cold weather, the dampness coming from the vapor breathed out by the fowls and having no way of escape. It is not too much to say that in former times fowls were fairly steaming on a cold morning when the doors were opened. Going from this vapor-laden air out into the cold clear air of winter struck a chill through them and cold, roup, bronchitis and other throat and lung diseases were much more common than they are today.

It is absolutely necessary that fowls have plenty of pure, fresh air at night. No flock of hens will lay well during the winter if kept in a badly ventilated house. This need led to many forms of ventilation, most of which made matters worse. A system of ventilation which would furnish pure air without any chance to create draughts through the house was long sought. Many plans were tried only to fail. The fact that impure air settles to the bottom of a room was lost sight of. The air which comes from the lungs of any animal or bird is warm, moist and laden with carbonic acid gas, a deadly poison. Confine any animal or bird in an air tight room and it will soon die from the effects of this carbonic acid gas exhaled from its own lungs. This gas is heavier than atmospheric air, and the carbonic acid gas and air are of the same temperature the gas sinks to the bottom of the room and if there is no means of escape it simply piles up until the room is full and life



TOULOUSE GEESE.

The Toulouse geese are a purely English breed. Both male and female are very massive in proportion. The bill and feet are dark orange color, head, neck and back a dark gray, breast light gray, but descending lighter till beyond the legs to the tail, they are pure white. The combination of color presents a very attractive appearance.

Both male and female are uniform in color, being alike to a feather. Adult Gander 20 pounds, goose 18 pounds, young gander 18 pounds, young goose 15 pounds.

is impossible. However, when the air first comes from the lungs of the fowls it is warmer and lighter than the air in the room and this carries the deadly carbonic acid gas toward the roof, where it soon cools and begins to sink toward the floor very slowly. In its descent it passes the fowls on their perches and they breathe in some portion of it. This may not be enough to make any serious disturbance, but it will be enough to so far reduce the vitality of the hens that they will not lay well.

After many systems of ventilation had been tried and found faulty some one discovered that cloth be used in the windows of poultry houses instead of glass. It was found that a house with common muslin in the place of glass was as warm as one with glass in it and light enough for all purposes, while muslin was cheaper than glass. Soon it was observed that a poultry house with cloth windows was never as damp as one with glass windows and then it was observed that the poultry house with cloth windows was entirely free from the stuffy, foul odors which had long been associated with poultry houses. Gradually it began to dawn upon poultrymen that cloth windows provided a perfect system of ventilation as the air would enter between the

threads in the cloth in such a manner that it created no draught, but spread all over the room renewing the air in a short time.

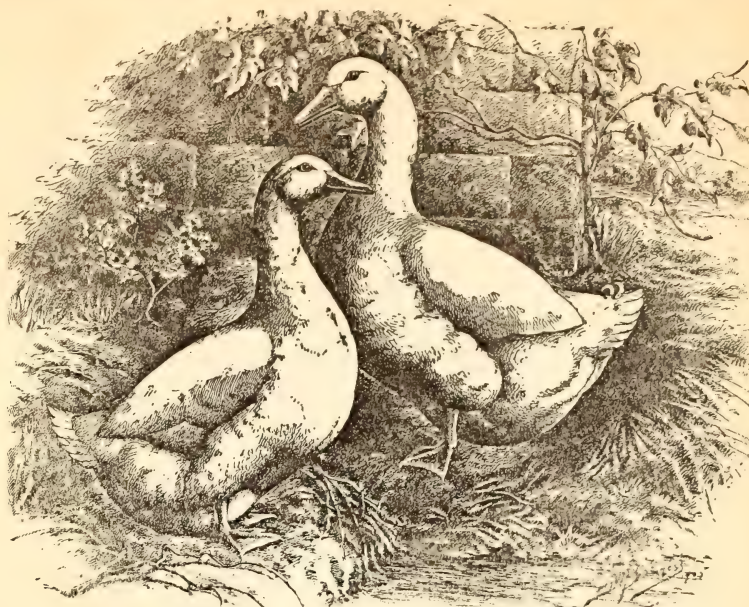
This led to careful experiments when it was found that a cloth window in a poultry house prevented dampness by allowing the vapor of the breath of the fowls to escape instead of lodging on the walls and ceiling of the house to turn into frost in cold weather.

Gradually cloth began to take the place of glass in poultry houses and it was not long before poultrymen were trying how larger windows would work and being found to work well the size of the openings in front have been increased until now many poultry houses are open nearly the whole of the front, muslin being substituted for glass and even the muslin screen is not used except in quite cold weather. I know of one poultry house built on the plan of House No. 1, shown in the illustration, which is left open at least nine-tenths of the year, only a wire netting screen being used to keep the fowls in and enemies out. The chickens kept in this house have never been touched with frost and have laid exceedingly well during the winter.

With the use of the muslin window came in the drop curtain, described further on, and these two improvements have done more for the health of the fowls of this country than any other two devices ever invented.

In making plans for a poultry house the simpler the plan the better for both owner and birds. Every inside arrangement should be made so it may be easily taken out and put out of doors when the house is cleaned. The nearer each room resembles a big square box the easier to keep clean and in good condition. The plans should be made so the perches do not touch the walls at any place. The little red mites which are so troublesome to the poultry-keeper and cause him so much loss every year, are not really lice but blood-sucking spiders. They do not breed on the fowls and very few of them stay on them during the day, seeking cracks and crevices to hide in during the day. If the perches rest against the walls these little pests find hiding places in the crevices in the walls as well as under the perches and lay their eggs there, multiplying in an amazing way. If a few of these mites are introduced into a poultry house it will not be long until there are millions of them, and the tiny speck of blood that each one takes makes up an aggregate which depletes the vitality of the birds and makes them easy prey to any germs of disease which may come along. The floor of the poultry house should always be kept covered with a light coat of fine dust. This may be common garden soil well dried, road dust or coal ashes. Slacked lime and wood ashes are sometimes used but they take the color out of the shanks of the birds and make their plumage rough and unsightly, because they are alkalies and eat up any oil with which they come in contact. Lice and mites which drop into fine dust soon die as they can not move about in such material and the fine particles of dust stop up their breathing pores and choke them to death. Over the dust on the floor dry straw, leaves or other litter should be put to the depth of six inches. When clover or alfalfa hay are to be had one of these should be used in the place of other litter during the winter. Laying hens and growing chickens eat the leaves and smaller stems of good alfalfa or clover hay and this saves feeding as much grain as otherwise would be needed as well as taking the place of green feed which they get in the summer months. I do not know of a better use for either clover or alfalfa hay than to use it for litter in a poultry house, renewing it at least once a week, and twice a week is better.

Inside the poultry house there should always be a wide, shallow box filled with dust in which the hens can wallow. In the dust a little fine sulphur should be sprinkled as a help to keep away lice and mites. In another box there should be plenty of grit of some kind and in still other boxes crushed oyster shells or crushed bone and charcoal. It is now possible to get crushed charcoal at almost any store where poultry feed is sold and this is one of the best things that can be given hens as it has the power of absorbing gasses and keeping the stomach clean and sweet. Prepared charcoal with which is mixed other ingredients good for fowls is now sold by some manufacturers and this is preferable to the natural product as it is tonic and blood-purifying as well as being a preventive of disease. Water, of course, should be supplied plentifully. It is best to use a water fountain which keeps the water clean, but an open vessel may be used if it is set on a platform about eight



MAMMOTH IMPERIAL PEKIN.

They are the most popular as well as the most profitable duck we have in this country. They are very large, creamy white, laying from 100 to 150 eggs each season. They are, as a rule, very easy to raise, mature quickly, and are the leading variety for market; do not require water except for drinking. Standard weights are as follows: Adult drake, 8 pounds; young drake, 7 pounds; adult duck, 7 pounds; young duck, 6 pounds.

inches high to prevent the fowls from scratching litter into it. Where there is more than one room in the poultry house it is a good plan to cut a hole in the partition between the rooms and set the water vessel in this so two rooms can drink from the same vessel. This should be on a platform also, as clean water is as necessary for fowls as for human beings.

The nest boxes should be so arranged that the hens are out of sight when on the nest. This may be done by setting the nests away from the walls with the openings on the back side so the hens must go behind the nests to get into them. It is best to make a row of nest boxes having a hinged lid so the eggs can be taken from the top.

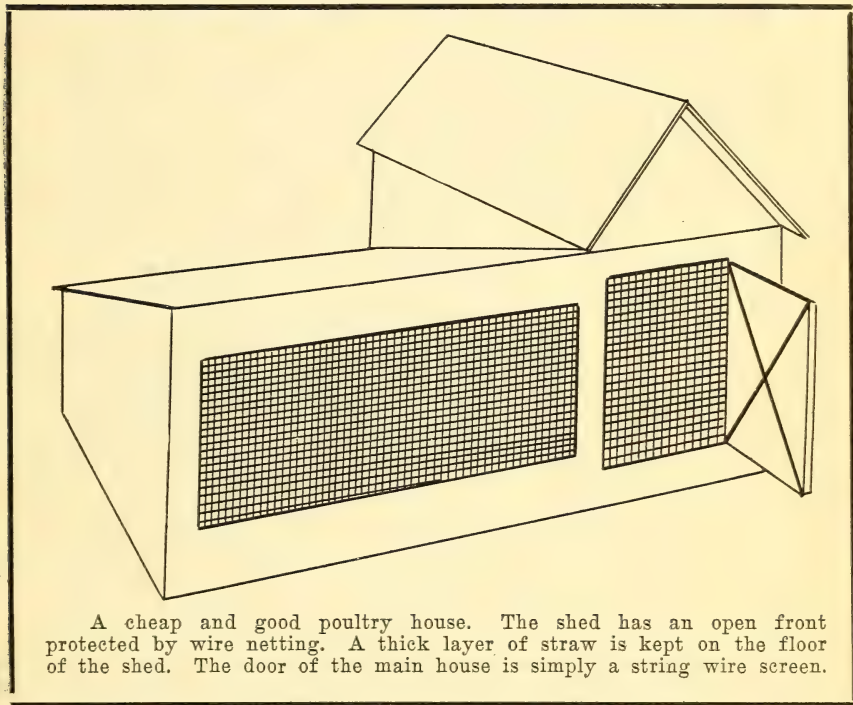
The perches should always be on a level. It is a mistake to make the perches so that one is higher than the other as hens always fight for the highest place and the hens that roost highest in the house always have the purest air. The best way to make perches is to make a table about thirty inches high of a length that will bring the ends eighteen inches from the walls and wide enough to support the number of perches needed with a foot on each side to spare. On this table the perches may be supported by putting them on a piece of 2x8-inch scantling, set edgewise. A good perch is made of 1x2-inch strips with the top corners rounded so as to fit the toes of the hens as they sit on them to sleep. These perches should be laid so a wide side is up and may be kept in place by being dropped into notches cut in the support. When perches are arranged this way with a dropping board under them the hens have the use of the whole of the floor and most of the droppings are caught on the board and can be drawn off with a common hoe and caught in a box or basket to be carried out. The dropping board should always be

covered with an inch of dry soil so as to prevent the droppings from sticking to the boards. Where droppings are kept and stored in a dry place, when thus mixed with soil, they are worth \$20.00 a ton for fertilizing purposes and are well worth saving. The dropping board should be cleaned at least twice a week.

THE HOUSE ITSELF.

Having described the accessories of the poultry house I will now give plans. As I have said the simpler the plan the better the house. The very best practical poultry house that can be built may be built of very common lumber. It is useless expense to buy first-class lumber for a poultry house, unless money is no object and the builder wants to make his house ornamental as well as useful.

I prefer the shingle roof to anything else I have ever used. It does not



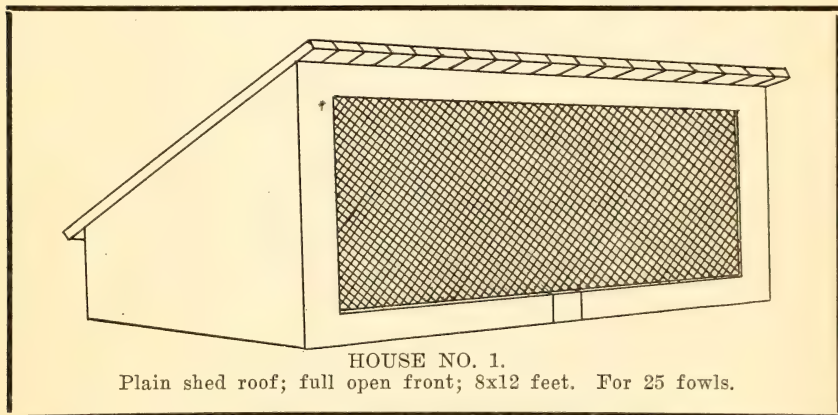
A cheap and good poultry house. The shed has an open front protected by wire netting. A thick layer of straw is kept on the floor of the shed. The door of the main house is simply a string wire screen.

cost any more than a roof made of any first-class roofing material and is better in many ways. In the first place a roof made of any of the roofings containing coal tar asphaltum makes the house very hot in summer, as the material of which it is made conducts heat perfectly and the inside of the house becomes very hot in summer. A shingle roof makes the house cooler in summer and is just as warm in winter. The sides of the house may be made of common shiplap lumber and battened. This makes a sightly house and when lined with a good quality of building paper a very warm one in winter. The front of the house may be in the open style, as illustrated, or closed and lighted with glass windows as the builder prefers. I have illustrated open front houses because they are becoming very popular with poultrymen everywhere, but any one who prefers glass windows and a tight house can modify the plans I give without the least difficulty.

Among all the poultry houses plans there are just three foundation styles. All poultry houses are modifications of these three styles.

If a tight poultry house with glass windows is built instead of one with large openings screened with muslin instead of glass the inside arrangements can be the same except as to the drop curtain. This drop curtain is fastened to the roof so as to drop a few inches in front of the perches. It should extend entirely across the room so that when it is dropped down it makes a little sleeping room three sides of which are the sides of the room, the curtain itself making the fourth side. This curtain should be made of a rather closely woven burlap such as grain sacks are made from. This curtain prevents the air from moving rapidly around the fowls and retains the heat of their bodies close to them instead of allowing it to be spread all over the room. At the same time the burlap is open enough to allow fresh air to enter the sleeping quarters. With such a curtain the open front house has a frost proof sleeping place for the fowls even in the coldest weather and at the same time gives them a full supply of fresh air.

In making the curtain front for an open front house and the drop curtain, the best houses now have the opening in front covered with common poultry netting on the outside and inside one or more frames are made to fit the window opening. If the opening is a large one two screens are made but a small opening needs but one. These frames are made of light material and the muslin covering for the window is stretched over them. The frames are then hinged at the top so they can be swung inward and fastened by a hook close to the roof. The drop curtain is made in a similar way. This makes the screen rigid and close fitting so wind can not blow it out of place.

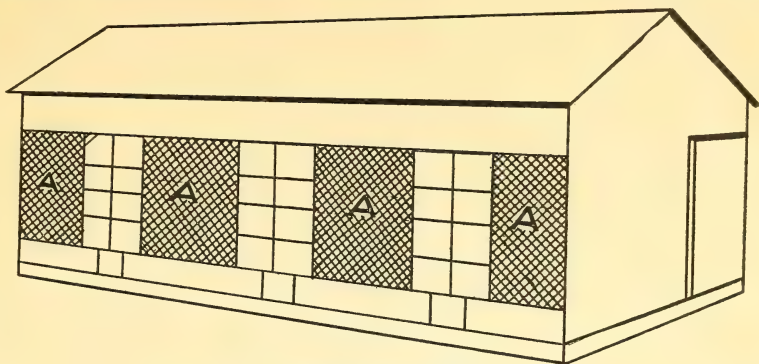


HOUSE NO. 1.

Plain shed roof; full open front; 8x12 feet. For 25 fowls.

HOUSE NO. 1.

House No. 1, which is illustrated, shows a plain roof. This is the cheapest form of a poultry house and requires less lumber for a given floor space than any other style. It may be made quite low at the rear and the lower it is the less space inside to spread the heat of the bodies of the fowls over and the easier it is to maintain at a comfortable temperature. The lower the less lumber it requires also, and the cheaper to build. It should be high enough at the front to give sufficient head room so the care-taker need not stoop while doing his work, but four and one-half or five feet is high enough for the rear. The illustration shows a one one-room house, but rooms may be added until the house is large enough to accommodate a flock of any size. It is recommended that where more than one room is needed the partitions be made tight. For convenience a door is placed in each partition, this being hung on hinges which allow the door to swing either way, these being spring hinges so the door will naturally be placed at the front end of the partitions and the perches for the fowls at the back. One poultry house of this kind has ten rooms in it, nine being for the fowls and the other a feed room. This house faces south and has but one outside door at the east end. The illustration shows a small door under the large window in front. This is wide

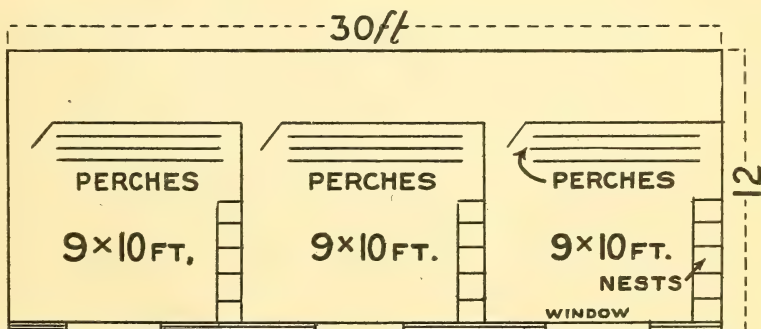


POULTRY HOUSE NO. 2.
A Wire Netting Between Windows.

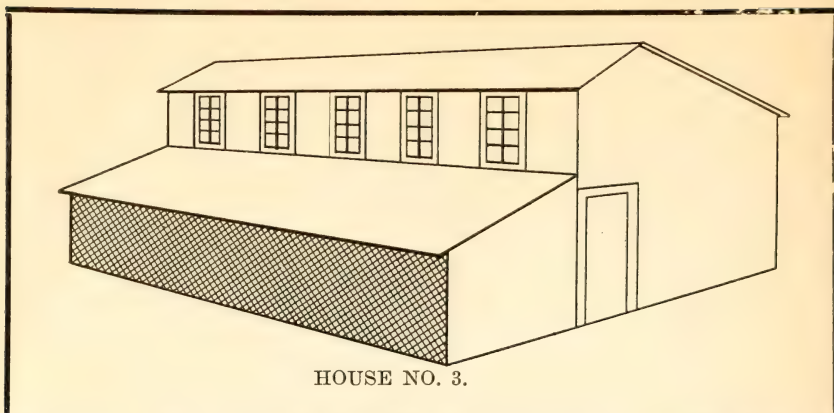
enough so that in cleaning the house the refuse can be pitched through this opening. The yards attached to this house all have a gate next the house and when the house is being cleaned a wheelbarrow can be used, one man inside pitching the refuse out and another loading it on the wheelbarrow. If but one man is doing the work he first cleans the room and later wheels the refuse away. For most people this style of house is preferable to any other.

HOUSE NO. 2.

House No. 2 is preferred by a good many poultry-keepers because the work can be done without in any way interfering with the fowls, as it has an alley-way at the back through which feed is carried. Some poultrymen claim that hens lay better when the care-taker does not disturb them, while others claim that the more familiar hens are with the one taking care of them the better they lay. It is also claimed that a hall or alley-way in a poultry house simplifies the work of caring for the birds by making it possible to carry the feed along the alley and place it where the fowls eat it with the least possible expenditure of labor. This style of a house is considerably more costly than the shed roof illustrated as No. 1, as the roof must be higher, the space taken up by the alley is wasted and an extra partition of some kind



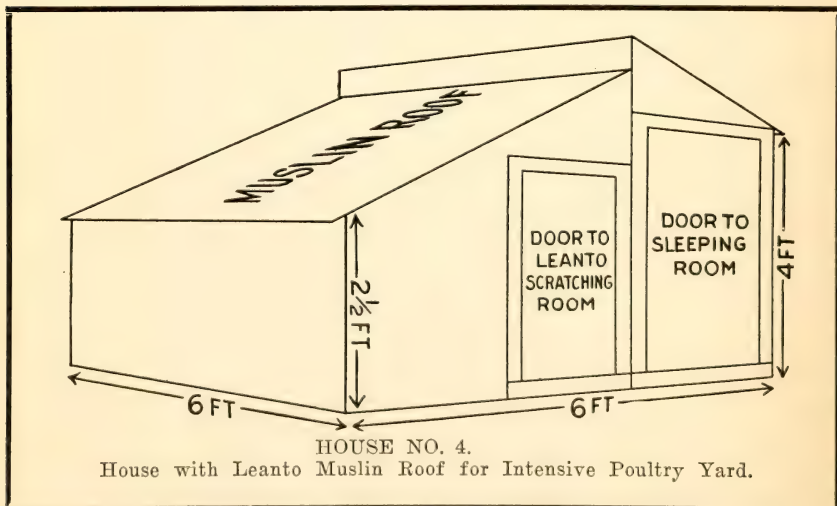
POULTRY HOUSE No 2
GROUND PLAN HOUSE NO. 2.



HOUSE NO. 3.

is necessary between the alley and the pens or rooms in which the fowls are kept. House No. 2, as illustrated has glass windows of the usual kind and between the windows the poultry netting and muslin curtain is used. In all forms of poultry houses a considerable number are made in this way. It is claimed that this gives the fowls more light with the added advantage of giving them the pure air that comes with the full open front style. The openings between the windows are fitted with poultry netting and muslin covered screens the same as they are fitted in House No. 1. The house shown in this illustration is 12x30 feet, contains three rooms and is used to house seventy-five fowls. The same money used in this house might have been used to build a shed roof house capable of accommodating 150 hens.

House No. 3 is a very good one but a very costly one to build. As the illustration shows, it is a combination of two shed roof houses, one enough higher than the other to allow a row of windows to be let in above the roof of the lower one. The leanto or lower part of this house has a full open front as described in House No. 1, and it is a rare cold night when it is necessary to put down the muslin screen in this house. The hens sleep in the back part of the house and when the burlap curtain is let down they do not feel the effect of the cold out of doors. The roof of the leanto is so low that rains or snows never blow far into the house and this leanto makes an excellent



HOUSE NO. 4.

House with Leanto Muslin Roof for Intensive Poultry Yard.

scratching room as the low roof facing the south allows the sunshine to warm it while the windows above give free entrance to the sunshine allowing the whole house to be warmed every sunny day. The only thing that can be said against this house is that it costs more than the average poultryman feels able to put into a poultry house.

A plan for keeping a few fowls cheaply and well has been invented by a friend of mine who did not care to go into the extreme of intensive poultry culture, but who had time to give his birds good care. He first built a narrow house 2x6 feet, six feet high and covered it top and sides with a good prepared roofing. The high side of this house was to the south and in the south side a window about thirty inches square was cut and this was first covered with wire netting and then with a heavy muslin. The door was in the east end and as just as large as the end of the house. The roosts were on the north side. A small door was cut next the floor so the hens could go out and in at pleasure. On the south side of this house a leanto four feet square was built. The south side of this was thirty inches high and the side next the house first built was five feet high. The sides of this leanto were covered with prepared roofing and a door was cut in the east and next the larger part of the house. The leanto was covered with thick muslin, tightly stretched and fastened to rafters.

With these three styles of houses as models any poultryman can plan a house to suit his individual tastes, modifying the plans I have given to suit himself. I have selected these plans as the three which contain all that is needed in any good poultry house expecting the reader to be able to make such use of them as best suits him.

These styles admit of much chance for individual ingenuity and are given not as the only styles worth using but as the best models of the three prevailing styles. Another form of house for the "back yard" poultryman will be given in the chapter on intensive poultry-keeping, which follows.

Chapter V

INTENSIVE POULTRY CULTURE.

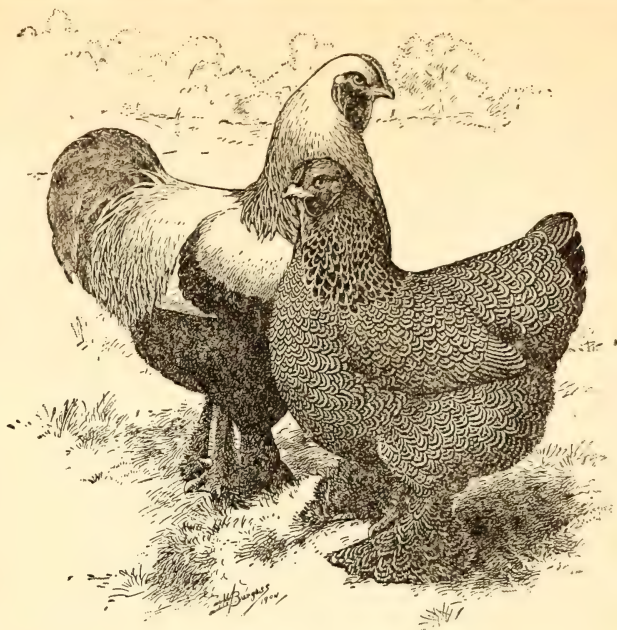
Intensive poultry culture is receiving much attention these last few years, although it has been talked about for a long time by a few who have tried it. As long ago as ten years a fancier in New Jersey succeeded in keeping more than 400 full grown fowls on a little less than one-third of an acre and made his business successful, keeping his hens in good health and up to the highest mark in laying.

It would seem almost impossible to keep so many hens on such a small lot and the writer became so much interested in the stories this man told that he traveled to the plant on purpose to see it and convince himself that the fowls were actually there.

The land was almost covered with big fowls and every one seemed to be hearty and vigorous. The yards were small but they were kept very clean and all the grain the birds got was spaded into the ground, this being a fine sand which was hauled into the yards and laid down to the depth of four or five inches. Once a year this sand was taken out and a fresh layer put in. The flocks were divided into little flocks of about a dozen hens and each room was kept in perfect condition.

Later an eastern experimenter tried keeping his hens confined year in and year out in little houses 3x6 feet, putting six hens in each house. These houses, or rather coops, have a window in the south side and a wire netting top over which is a cover of muslin and a roof. The roof, the muslin cover and the wire screen are all made so they can be lifted easily and all the work of caring for the hens is done from the outside as the houses are but two feet high. One-half of each house is floored and the other half has no floor. In the floored end is the nest box and in the unfloored end the grain is placed and spaded into the soil so the hens must dig it out.

The writer has visited two plants where this system was being used and in both of them the birds were, to all appearances, perfectly healthy and laying as well as could be wished. As these houses occupy but little room



DARK BRAHMAS.

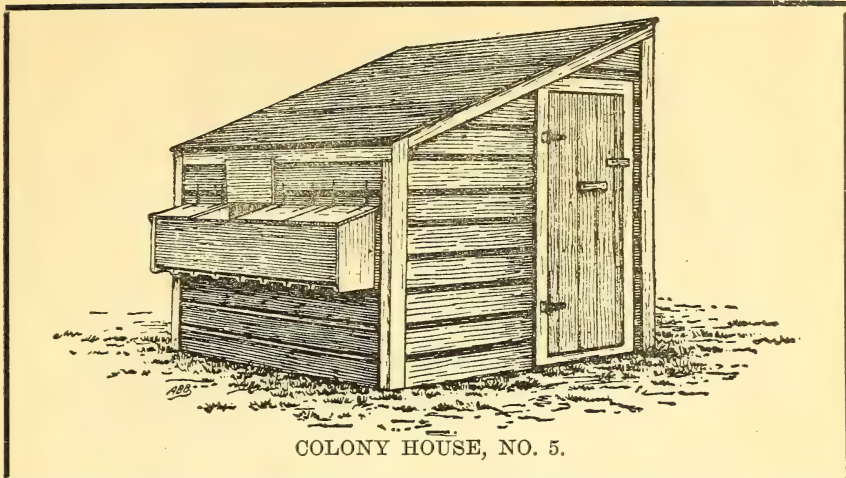
Dark Brahmas originated from the famous Shanghai strain of Light Brahmas over half a century ago. The plumage is beautiful. The male having the breast and body of a deep black, and neck and hackle of Silver white with black stripes extending down the middle of each feather. The female has a hackle of same color as the male with a body covering of gray with distinct dark pencilings in lines which conform to the shape of the feathers. Geo. P. Burnham of Massachusetts is given credit for producing the first distinct type of dark Brahmas. They differ from the Light Brahmas only in size and color. Standard weights, cock 11 pounds; hen $8\frac{1}{2}$ pounds, cockerel $9\frac{1}{2}$ pounds, pullets 7 pounds.

it is possible to keep a large flock on a small piece of land. One of the plants visited was owned by a doctor who kept about 200 fowls on a town lot back of his house and these paid a handsome profit on their cost. The houses are set in rows two feet apart each way so each house occupies only 5x8 feet of land. If a whole acre was covered with such houses there would be about 1,000 of them capable of accommodating 6,000 full grown fowls. I do not know of a plant as large as this but this will show the possibilities of an acre of land under the most intensive system of poultry culture.

This system requires considerable work as every duty must be performed regularly and spading the grain into the soil in each coop takes more time than it would to feed a much larger flock in the ordinary way. For one who loves poultry and is interested enough to take proper care of them this system allows a flock of 100 to be kept in a back yard and the work need not take more time than the average professional man, clerk or shop worker can find mornings and evenings.

Under this system the originator uses little or no meat feed of any kind. He feeds wheat, oats and corn and has a trough of dry bran in each house to which the hens can go at any time.

A plant of this kind returns more money for the space it occupies than any other form of out of door work, and those who live in towns can keep fowls enough to supply the family with poultry and eggs and have both to sell



without going to extra expense for land on which to keep them. The hens occupy but little space, they are out of danger and kept from bothering garden or lawn.

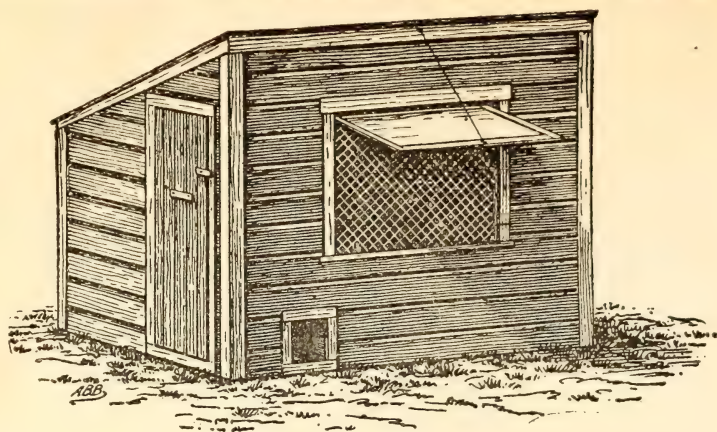
The chicks are hatched in incubators and reared in brooders until they are large enough to sell or go into the regular laying pens. Quite a business in supplying the market with broilers might be done in a back yard under this system.

The higher part was used as a sleeping room for ten full grown Plymouth Rocks at first. Later eight more hens were put in it, making eighteen. This number was later reduced to fourteen as four were culled out.

The hens were put into this house just six feet square for both rooms. It was built in the fall and after the hens were put into it they were not out of it until five months later. The winter of 1909-1910, it will be remembered, was a severe one, yet the hens in this house were not touched by the frost and they laid all winter. The leanto with its muslin roof was as light as day and the sun shining squarely down on it made it as warm as summer. This leanto was protection enough for the muslin window of the sleeping room to prevent that room from ever getting cold. The sleeping room was cleaned every other day and fresh litter was put in the leanto at frequent intervals.

In many places a back yard poultry plant is surrounded by a high and tight fence or is protected by buildings so as to keep cold winds off. In such places a simpler form of a house may be used and this same house is an excellent one to use where the fowls are divided into small flocks. The illustration shows plainly how the house is built that I do not think it worth while to give particular directions as to building it. For convenience in referring to this house I call it a colony house. The nests are built just above the perches and so arranged that a hinged board drops down before them to prevent the hens from going into them to sleep. As will be seen from the illustration, the eggs are taken from the nests from the outside. Where it is not convenient to gather the eggs several times a day in cold weather it is better to build the nests inside the house to prevent damage to the eggs in severe weather.

With poultry plant operated on the intensive plan it is entirely possible to produce results quite worth while. One poultryman in Pennsylvania began on one vacant lot and succeeded so well that he rented three more vacant lots and made money enough off the fowls he kept on them to buy them. He then planted these lots to peach trees and began to keep more and more fowls on them until at last he made such a good reputation breeding fine fowls that he sold \$1,200 worth of eggs for hatching and fowls for breeding purposes in one year. When his peach trees came into bearing he had a supply of this delicious fruit for his own use and sold a good many in the market. From this little plant in the outskirts of a town this young man did a business that



COLONY HOUSE, NO. 5.
Rear View of Same Showing Trap Nests.

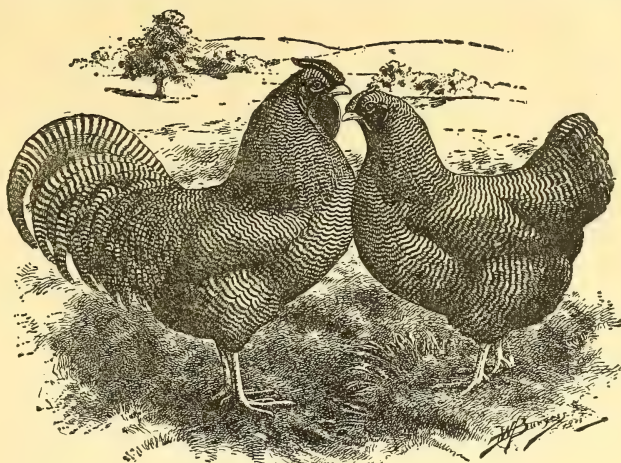
gave him a wide reputation and kept his family in comfort. He only abandoned the plant when the lots grew so valuable that he could not afford to keep them for poultry yards any longer. He then sold them and bought a farm and is now a prosperous poultry farmer. If he had not had a love for fowls and exercising his ingenuity in providing for them in small quarters he would, no doubt, have been still working in an office at \$12 a week. He owes his whole good fortune to his love for poultry and to the fact that he was not discouraged about getting into the poultry business because he had only a little place in which to keep them.

Another young man who worked in a shop in a western town had a liking for poultry, a liking in which his wife shared. He had just one little lot 25x125 feet, on which his house stood. He had bought this house and lot on the installment plan and was working hard to make the payments. He had a space 25x125 feet on which to keep poultry. Along one side on the lot he built a small poultry house and used one end of his lot for a poultry yard. He took care of the birds in the best manner he could learn and saved the money he made from them to use in paying for his home. The first year he did so well with twenty-five fowls that he doubled the number and added a room to his poultry house. From this little start he gradually increased the number of fowls he kept until he had 400 on one city lot back of his house and every one of them was healthy and vigorous. He neglected no duty, kept his house and yards absolutely clean, fed the birds well and while he was at the shop his good wife watched the chickens to see that everything went along all right. From the hens in this back yard he made a clear profit of a little more than \$500 in a year and used this money to pay for another lot. He is thinking now of getting out of the shop altogether and working for himself. He began in a small way, watched other poultrymen at their work, asked questions and profited by the experience of others until he has made himself independent, although he began with only a few dollars and grew up in the business.

Let no one be discouraged if he has a liking for poultry because he has only a little back yard. If he uses this space intelligently he will be able to make the profits of that back yard buy him a larger one before very long.

Nearly every successful poultry-keeper in this country started in a small way and enlarged his business as he found opportunities to do so. Almost every failure in the poultry business has come by spending a large sum to begin with and overdoing the business because the owner had no experience.

Do not forget that the only way to build up in the poultry business is to begin with the best stock that you can buy. Get good birds, or buy good eggs, even if you have only money enough to buy a pair or a breeding pen, of birds or a few settings of eggs. There is a great and growing demand



AMERICAN DOMINIKES.

One of the oldest breeds known in this country, and supposed to enter largely in the makeup of the Barred Plymouth Rocks. In color they are a counterpart of the Plymouth Rocks, but in shape are more of a combination between the Wyandottes and Leghorns; not quite so sprightly as the latter, but having many of the rounded curves of the former. They have a rose comb that is a combination between the Wyandottes and the Hamburgs. The breed is one of the oldest; is bred only in a limited way, and but few good specimens are found. Standard weights are as follows: Cock 8 pounds, cockerel 7 pounds, hen 6 pounds, pullet 5 pounds.

for the best pure-bred poultry, but the demand for "scrub" stock is only from the food market and the prices received are only those found in the market quotations. The man who starts with pure-bred fowls will gradually find others coming to him for fowls or eggs at prices far beyond the market price and this reputation will spread until a big business may be built up and a competence earned.

I always like to watch the young fellow who starts out under unfavorable circumstances to build up a poultry business for I know he is on the right road and will succeed if he follows the best methods and tries to prove his stock every year.

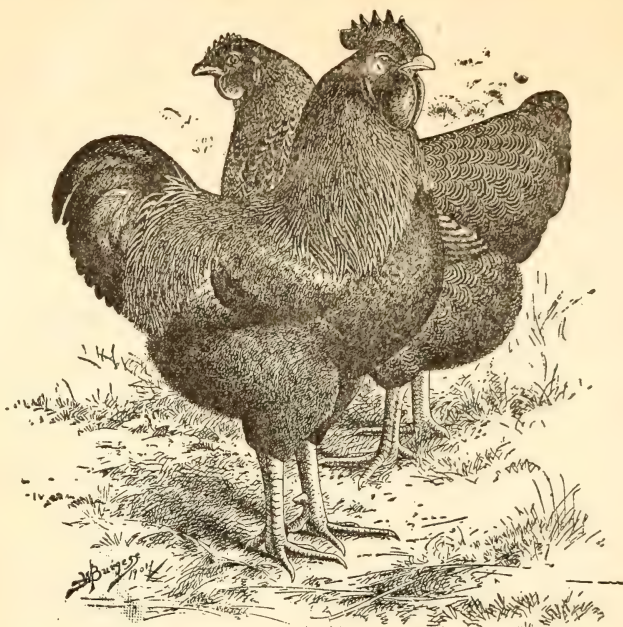
Chapter VI

SELECTING A BREED.

I think the question most frequently asked me is, what breed is best for a beginner. This is a question that every one must answer for himself, but my long experience enables me to give some general advice which may guide those who are in doubt as to which breed they should select.

It is perfectly safe to say that there is no distinctively best breed of fowls. Every recognized breed must have merit or it never would have made its way far enough to have become recognized as a distinctive breed.

During the last twenty-five years a large number of new breeds have been introduced and boomed. Some of these have almost passed from memory and only the older breeders remember the "White Wonders," the "Erminettes," the "German Antlers," the "Pea Comb Plymouth Rocks," and a number of other breeds, while during this time most of the varieties of Wyandottes and Plymouth Rocks have been originated and the ten varieties of Orpingtons have been introduced.



PARTRIDGE PLYMOUTH ROCKS.

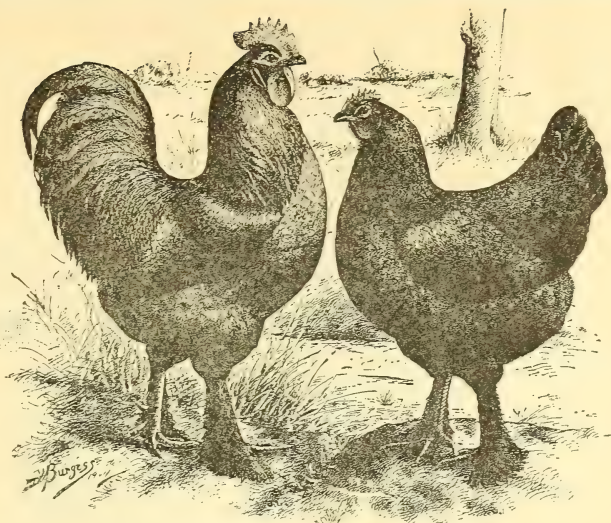
One of the newest of the Plymouth Rocks originated from crosses of Plymouth Rocks and some of the several varieties of fowls having the color of the Partridge Cochins. General characteristics the same as the Barred Rocks. Standard weights are as follows: Cock $9\frac{1}{2}$ pounds, cockerel 8 pounds, hen $7\frac{1}{2}$ pounds, pullet $6\frac{1}{2}$ pounds.

There are a number of still recognized breeds which have almost disappeared. Among these may be mentioned the Javas, Black and Mottled, the Redcaps and several of the Hamburg varieties. The American Standard of Perfection once gave a place to a variety known as Jersey Blues but these have entirely disappeared while the White Javas were swallowed up by the White Plymouth Rocks. The breeds that were once popular but have now dropped out disappeared because they were superseded by breeds with greater merit.

The beginner should decide before starting what he most desires to accomplish before selecting his breed. If he wants eggs for market he will find the Leghorns in all varieties good layers. The Leghorns are not first-class market fowls because they are rather too small for market purposes, although where one lives where chickens or broilers are in good demand Leghorns will prove profitable as market fowls because the young chicks grow to broiler size as quickly or more quickly than almost any other breed.

Minorcas are good layers of fine, large white eggs. The eggs of the Minorca fowl will weigh almost 50 per cent more than those of the Leghorn family and where a private egg trade is to be built up Minorca eggs will hold the trade against any other breed, except, possibly the Light Brahma and Langshan, these two breeds laying eggs fully as large as those of the Minorca fowl. Within three or four years the interest in Minorca has grown amazingly and there is a good demand for breeding stock, assuring the one who produces it a ready sale at good prices.

Another good laying breed is the Houdan. This breed is reputed to be among the best table fowls, on account of its deep breast and thick thighs.



BLACK LANGSHANS.

Langshans were originally imported from China and are today one of the most popular fowls of the Orient. No variety of fowls ever gained popularity faster since their importation. The Langshans are large, stylish birds, with ear lobes and combs glowing against their glossy black feathers, form a striking contrast. They attain maturity as early as any if the large breeds, lay large, rich eggs the year around, and are not persistent sitters. They make an excellent table fowl, for delicacy of flavor, white flesh and skin especially. They are large in size and well built, and make good mothers, continuously looking after the young. Chicks when first hatched are about half white which is no indication of impurity of stock.

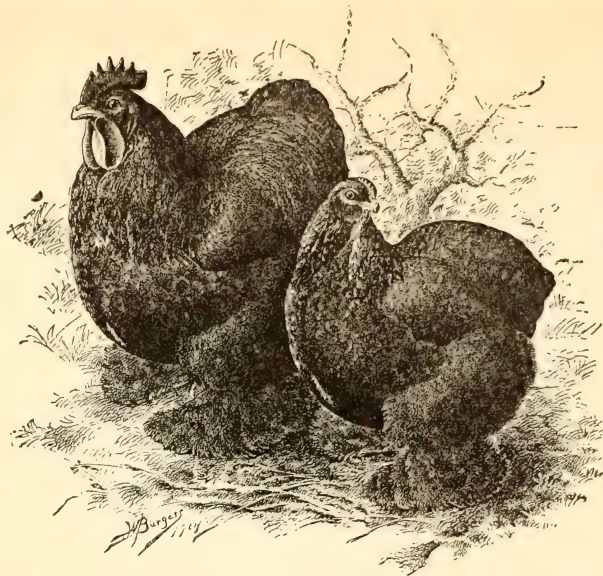
Standard weights are as follows: Cock 10 pounds, cockerel 8 pounds, hen 7 pounds, pullet 6 pounds.

The eggs of the Houdan are large and pure white. Leghorns, Minorcas and Houdans can not be depended on to sit and their eggs must be hatched by other breeds of hens or in incubators.

If the beginner is seeking a general purpose breed he has an opportunity to choose from a number of breeds and many varieties. Among the general purpose breeds are Plymouth Rocks, Wyandottes, Rhode Island Reds Orpingtons and Langshans.

The Plymouth Rock is the oldest of the distinctly American breeds and the most popular of the general purpose families. The Barred Plymouth Rock is an old favorite which has never been driven from its position as the leading American breed. It has a color that makes a beautiful fowl, yet does not show stains or appear ragged as do the feathers of other breeds. It has the yellow skin Americans like, good table qualities and is a hardy bird. It is a fairly good layer, a good sitter but not a persistent one, and is a dependable fowl altogether. The White Plymouth Rock is a good second to the Barred variety and may be said to be its equal for all practical purposes. It is a sport from the original variety and is a very popular variety. The Buff Plymouth Rock excels as a layer, but is rather more persistent as a sitter than the Barred or White varieties. It originated in the same part of the country that produced the Rhode Island Red, and is of similar origin if not identical. The hens lay well in winter and endure cold excellently. They now breed quite true to color and are a very desirable kind of fowls.

The other varieties of Plymouth Rocks have not made much headway and are not yet old enough to have an established reputation. So far they are largely



BLACK COCHINS.

Black Cochins are like the other Cochin varieties except in color of plumage. Every feather is a deep lustrous black, with a green sheen showing on surface. Standard weights: Cock 11 pounds, cockerel 9 pounds, hen 8½ pounds, pullet 7 pounds.

in the hands of fanciers and the beginner can afford to wait before investing largely in them.

The Wyandottes are another American family of birds. Like the Plymouth Rocks their origin is unknown. The Silver Wyandotte, commonly called the Silver Laced Wyandotte, is the original variety. It is a pound lighter than the Plymouth Rock, but is perhaps a little superior as a layer and not quite so persistent as a sitter. This variety is no less popular as it was a few years ago because of the difficulty of breeding it true to color.

The White Wyandotte is the most popular member of the Wyandotte family. Its short, plump body makes it a popular market fowl and its early maturity brings it into market early when spring chickens are the object sought. It has become very popular as an egg layer and as a market fowl.

The Buff Wyandotte has no Wyandotte blood in it. It originated about the same time that the Buff Plymouth Rock was brought out and came from the same part of the country. The Rose Comb Rhode Island Red is a near relative of the Buff Wyandotte, both having come from Rhode Island and the writer remembers when Buff Wyandottes which happened to be too red to pass for buff birds were used to improve the head of Rose Comb Rhode Island Reds. The Buff Wyandotte breeds very true to color, is easily kept, endures cold weather very well and lays a large number of eggs. It is quite persistent as a sitter and an excellent mother. A flock of well-bred Buff Wyandottes attracts attention anywhere and the breeder who keeps good ones will find a ready market for his surplus stock at high prices.

Rhode Island Reds are very popular and they are a good breed. The Single Combs are more popular than the Rose Combs and seem to breed a little truer to type and color, but the difference is not great. Rhode Island Reds are rather hard to breed true to color and type, but they are not at all hard to breed to big laying records and are probably the best layers in the American class of fowls. They are deep red in color and good specimens sell at a high price, but

they are likely to breed uneven in color so they are as yet a better market fowl than one for beginners to select for fancy purposes. Yet as poultry and eggs are the foundation stones on which the poultry business rests this breed is one of the very best for the beginner to select, as it will bring him sure returns in market prices for the product of his poultry yards while he is learning the secrets of the business. The breed is hardy, the hens are layers and good sitters—rather too good I sometimes think. They endure neglect better than any other breed and are rustlers for themselves when they get a chance to forage.

The Orphingtons have been brought out in ten varieties, but only three varieties need take any of our time. The Black Orphington is a magnificent fowl, beetle green gleams flashing from its black plumage, deep in body, hardy and a fairly good layer it deserves all the attention it gets. The Buff Orphington is probably more popular than the Black, but it does not breed quite true to color and Orphington type, being inclined to come a little long in the legs and somewhat deficient in back shape. However, the Buff Orphington has many friends and deserves consideration. It has white shanks and a white skin, which is somewhat against it from the American point of view, but it is a good variety and is reputed to be a very good winter layer, while as a market fowl it will no doubt take a high place as soon as enough of the variety is sent to market to make a showing.

The White Orphington is having run in popular favor just now and it certainly is a beautiful bird. It is massive in build, strong in body, deep breasted, hardy and a good layer. This is enough to indicate that it will take a prominent place before many years in the poultry yards of this country.

The Light Brahma was once a very popular variety, and is as good today as it ever was, but for some reason it has declined in numbers and importance. It is comparatively rare in the West and not numerous in the East. It matures slowly, but is very highly esteemed as a table fowl and Light Brahma hens have made as good records as layers as has ever been made by any other breed. They are the heaviest breed of fowls we have.

Langshans are among our best fowls. They are pure black, the feathers throwing off greenish reflections when viewed in the right light. They are distinctively different in shape from any other variety of fowls and are now bred almost exactly as they were found in China about thirty years ago. They lay very large eggs and are the very best winter layers we have.

The Cochins, Hamburgs, Polish and French fowls, except the Houdans, are not extensively bred any more except for fancy purposes. In fairness I might say that those who breed fine specimens of almost any of these breeds are always able to sell their stock at good figures, but they are not really fowls for beginners.

The above are probably all of the breeds of chickens that we need refer to in this connection. The list includes enough to enable anyone to select a breed to suit his particular fancy, and after all, the beginner should be guided by his likes and dislikes for he will succeed better with a breed that suits his fancy than with one he takes up just because some one has recommended it to him.

Getting a Start.

The matter of the variety to be bred having been settled the beginner begins to study about the best way to start. Shall he buy fowls and hatch the eggs from them or would it be better to buy eggs from some breeder of the variety he has selected and begin that way. There really is but little choice between the two ways. If he buys really good stock he can buy a breeding pen of one male and four females and make a good start. Say he desires to begin by investing \$50. This would buy him a dozen pure bred fowls or a breeding pen of fine quality. Some good breeders would sell him a fine breeding pen for half the sum named. Of such a moderate-priced man he could buy a dozen females and a fine male for his fifty dollars. In such a case he would be ready to hatch any number of chicks up to 200 or 300 the first season and with \$50 a beginner could have a fine flock of laying hens six months after he began operations and be ready to begin business. For one who desires to start in this way and with this sum buying stock is probably the best way.

If one has only a few dollars to invest at first it is probably better to buy

eggs. Ten dollars will buy 100 pure-bred eggs from good reliable breeders. These will not be eggs from the largely advertised flocks of breeders who sell at very high prices, but they will be from good quality pure-bred birds and from them a good start can be made. From 100 eggs at least 75 chicks should be hatched and of these 70 should be raised. If they are equally divided as to sex, there will be thirty-five pullets and from these he will be able to select a very fine breeding pen from which to hatch the next year.

One of the beauties of the poultry business is that the flock increases rapidly and the beginner need not wait long before he can raise a flock for himself as large as he can find room for.

Any good breeder will gladly give the beginner advice as to how to select his matings so as to improve his flock. As a rule it is best to continue to buy of the same breeder each year that new stock is needed as this keeps the flock bred along the original lines. Line-breeding is the only way to build up a reliable strain of fowls always are better layers and better show birds than stock that has been bred in a hit-and-miss way.

VII

HATCHING AND REARING CHICKS.

Some one has said that it is the right of every child to be born well. Just the same it should be the aim of the poultryman that every chick should be hatched well. There are just two ways to hatch chicks; in an incubator and under a hen. I name the incubator first because it is coming to be the best way all things considered.

The beginner sends for incubator catalogues and finds that one manufacturer tells him a hot water machine is the only kind to use and another claims that the hot air system is best. One uses moisture in his machine and the other does not and every one claims to build the best incubator ever made. The exact truth is that almost every one of the modern incubators will do good work if directions are followed. Of course, some hatch better than others.

Personally I prefer the hot water system because I believe it is easiest to operate successfully. I have had long experience in building incubators and invented one of the best hot air machines, but in the end I went back to the hot water system as being the best for the beginner, because the volume of hot water in the tank prevents sudden changes of temperature in the egg chamber.

Every incubator maker sends directions for using the machine he makes to every buyer and in the main these directions should be followed, because the machines have different systems of heating, different systems of ventilation and differences in the egg-chambers and other parts and the directions are given to suit these differences in construction.

A few general directions may be given as they apply to all machines.

Any incubator works best in a room where the temperature does not vary widely during the twenty-four hours of the day.

A room with only northern windows is best as the sun should never shine directly on an incubator in operation. No regulator can regulate when the sun adds its heat to that of the lamp.

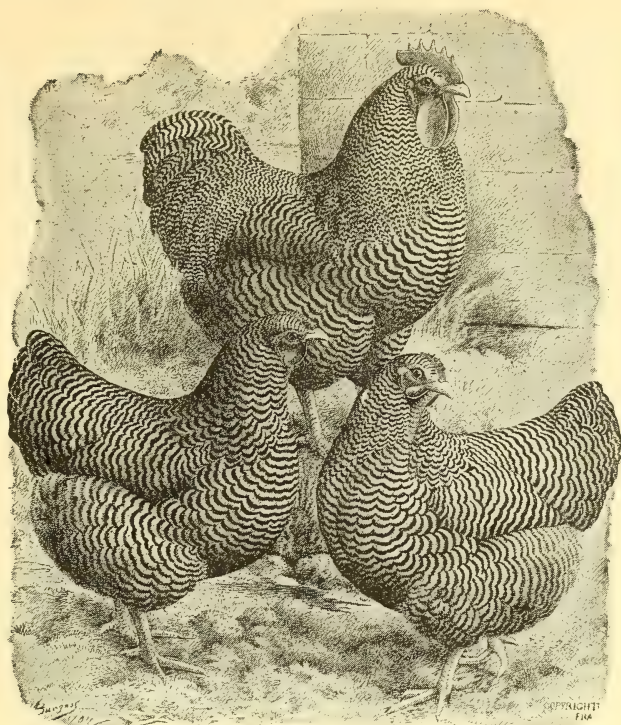
Remember that the regulator on an incubator is very sensitive and is only made to regulate the heat through a few degrees of temperature. If the lamp is turned too low the regulator cannot add any heat to it or if it is turned too high no regulator will cut off enough heat to keep the temperature down to the proper place.

Start the incubator without eggs in it and run it until the regulation is learned and it can be kept at the proper temperature.

When the eggs are put in the temperature will run down almost at once, because the cold eggs cools the egg-chamber. Do not change the regulator, but let the eggs warm up to the proper temperature when the regulator will hold it there.

If the temperature goes down or up do not change the regulator too much. Change it for higher or lower temperature a little at a time until it holds the heat at the proper place.

Turn the eggs twice a day and do this deliberately, taking the egg tray out



BARRED PLYMOUTH ROCKS.

The Barred Plymouth Rocks are of American origin, having originated from a cross of American Dominiques and Black Javas. They stand acknowledged as the best general purpose fowl. They are hardy, grow rapidly, and make plump, juicy broilers at the age of eight to ten weeks. As a fanciers' fowl they have reached a popularity never before known.

Standard weights are as follows: Cock $9\frac{1}{2}$ pounds, cockerel 8 pounds, hen $7\frac{1}{2}$ pounds, pullet $6\frac{1}{2}$ pounds.

and shutting the door. Eggs hatch better when cooled every day. They should be allowed to cool from ten to thirty minutes each day according to the weather.

Do not worry if the temperature should fall to 90 degrees for a few hours, but be careful to keep it below 105 as that temperature will kill the chicks in a little while.

Do not keep changing the regulator back and forth more than is absolutely necessary, and do not open the machine except when you must.

Read the directions of the manufacturer until you know them thoroughly and follow them closely.

If the machine does not give a good hatch do not call the manufacturer names. He could not sell enough machines to make it pay him if he did not sell good ones and nineteen times in twenty a poor hatch is due to the eggs or the operator and not to the machine.

Use the very best oil. Do not be satisfied with anything but the best, for without good oil a steady temperature is impossible.

Trim and fill the lamp every evening and watch the temperature for a while after this, as very often a freshly trimmed lamp gives out much more heat than one that has been burning a day.



BUFF COCHINS.

These are large, massive fowls, profusely feathered, and have a very fine carriage. They are very good layers, and will, under favorable circumstances, compare well with the Leghorn class for winter laying, while for a market fowl they far exceed them. Like all Asiatics, they are rather later maturing than those of the American class, but I have taken great pains and spared no expense to produce Buffs which are of special merit in early maturing, plumage and size. They are of a rich buff or golden color. They are heavily feathered and well adapted to cold climates. They breed true to color and are very docile fowls, can be easily yarded by low fence or wire netting. Standard weights are as follows: Cock 11 pounds, cockerel 9 pounds, hen $8\frac{1}{2}$ pounds, pullet 7 pounds.

Keep the temperature at 102 the first week, 103 the second and the third week if it runs up to 104, do not worry, for the animal heat of the chicks in the shell will run the temperature up. In very warm weather it is often necessary to put the lamp out during the hottest part of the day as the heat of the chicks will keep the egg-chamber hot enough.

When the eggs begin to pip keep the machine shut. Let them get out of the shell without help as a chick that must be helped from the shell is not worth bothering with. Let them gasp and crawl around as much as they will for this gives them strength.

When a very good hatch is coming off it is sometimes best to take some of the chicks out, but this should be done as quickly as possible.

Turn the eggs the first time on the morning of the third day after they are put in the incubator and the last time on the morning of the eighteenth day.

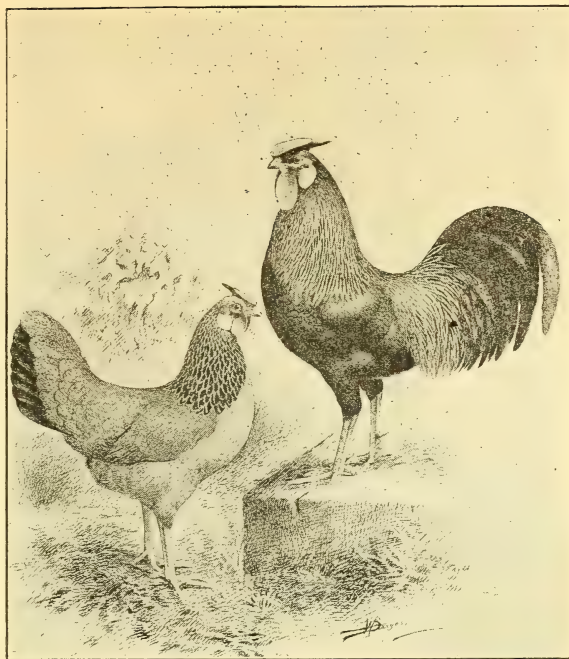
Get good eggs from thrifty and vigorous hens, do your part and the machine is almost sure to give you a satisfactory hatch.

Hatching With Hens.

Notwithstanding that there are hundreds of thousands of incubators in use, a large majority of the chicks hatched are still hatched by hens.

It is a good plan to set several hens at a time and when the chicks are hatched give each one fifteen chicks and put the hens for which there are no chicks back into the laying yards. It is a waste of time to have a hen going around with half a brood of chicks.

Put the sitting hens into a room by themselves and make the nests so the hens can be shut on them. This will prevent them from changing nests or two



ROSE COMB BROWN LEGHORNS.

For a handsome bird and for egg producers, the Leghorn stands at the head. There is no breed of fowls that lay so many eggs with so little feed. Both the Rose and Single Comb Leghorns were originally imported from Leghorn, a seaport in Italy (hence their name). The Rose and Single Comb varieties are exactly alike in every respect except the comb. The Rose Comb Leghorns are of a medium size, have beautiful gray plumage, white ear lobes and yellow legs, are symmetrical in form, and very attractive and pleasing in appearance, are very hardy and chicks are easily raised on free range. They are good foragers and pullets lay at an early age.

of them from getting into one nest and breaking a lot of eggs. Feed them at noon each day, shutting them off the nest while they are feeding and shutting them on again after they have had their feed. Whole corn is the best feed for sitting hens. Give them corn, water, grit and a box of dust to wallow in and leave them off the nest from fifteen to thirty minutes each day.

See that each hen goes back on her own nest and then shut them on until the next feeding time. In a few days they will learn the routine and be easy to handle.

The best nest material is first make a shallow nest of garden soil, patting it down firmly and smoothly into a saucer shape. Over this put a layer of fine straw. The soil may be quite damp when put into the nest box, as the dampness is natural to the nest of a hen which is one of the birds that naturally builds its nest on the ground.

No hen can hatch healthy chicks from eggs that are not all right. See that the eggs are from strong and healthy hens, not too fat, nor yet half-starved

About all the trouble that comes to the young chick can be traced back to carelessness on the part of the one who takes care of the incubator or the sitting



SINGLE COMB RHODE ISLAND REDS.

The Rhode Island Red is becoming more popular every year. This breed is now bred down until it comes quite true to color, and I do not know of a prettier color among fowls than that of the well-bred Rhode Island Reds. This breed may be said to have made itself as it was made up by mixing several breeds and then selecting the hardiest and best egg-laying specimens to breed from. The breed having originated along the stormy shores of the Rhode Island sea coast, it is very hardy and is among the very best of our winter layers. As a table fowl it ranks high and as a mother it does its whole duty. There is no difference in the two varieties. The Single Comb variety has a neat, small comb, small enough to escape the danger from frost that larger combs are liable to. Standard weights are as follows: Cock $8\frac{1}{2}$ pounds, cockerel $7\frac{1}{2}$ pounds, hen $6\frac{1}{2}$ pounds, pullet 5 pounds.

hens or to eggs that were produced by hens out of condition. A chick that comes from the shell plump and covered with long down is able to resist the diseases of chickenhood much better than one that is hatched in a dried and shriveled condition.

Operating a Brooder.

When chicks are hatched in an incubator they must be reared in a brooder and many poultrymen who use hens to hatch with take the chicks away from the hens and put them in brooders, because it is less trouble to care for them and the chicks grow better and faster.

Before using the brooder wash it with some disinfectant. Any coal tar disinfectant will do, and any druggist will supply it and give directions for using it.

Wash the brooder all over the inside with the disinfectant and let it dry before using it.

Get the temperature up to about 90 degrees before putting the chicks in.

Do not feed the chicks until they are two days old. This is nature's way and no improvement can be made on it.

Feed cracked wheat, steel cut oatmeal or stale bread crumbs at first, giving fine grit and water from the first feed.

I have found the prepared chick feeds very good. They may seem to be a little costly, but I know it pays to use them.

Let the temperature run down gradually until at three weeks it is about 65 degrees where it can be held as long as the chicks are in the brooder. As the



SINGLE COMB BUFF ORPHINGTONS.

The Single Comb Buff Orpingtons are becoming a very popular breed. They have been a leading breed in England for a number of years, in fact, they are as popular there as the Barred Plymouth Rocks are in America. As a general purpose fowl they are very good. They have a rich buff plumage. As good as any of the buff varieties. They are also good layers. Standard weights are as follows: Cock 10 pounds, cockerel 8½ pounds, hen 8 pounds, pullet 7 pounds.

chicks grow the brooder will require less heat from the lamp, but the temperature should be kept quite regular.

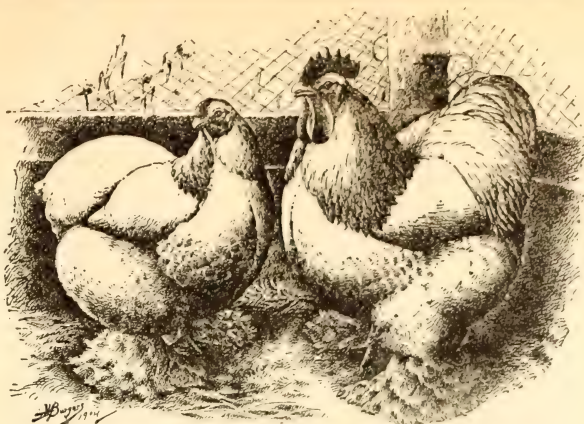
Do not feed very young chicks too much at first. Feed them rather sparingly, but often for the first week. They should be fed five times a day, but only as much as they will eat in an hour. Leave nothing before them that they can eat except what you give them, as they will pick up and swallow almost anything until they learn to select their feed.

After the fourth day give the chicks some kind of vegetable feed, such as boiled potatoes or cabbage cut fine. After things begin to grow in the spring, lettuce or dandelion leaves, cut fine, make very good feeds for young chicks. They may be allowed to eat as much as they will of these green things as they are both feed and medicine for them.

Meat feed is almost absolutely necessary to growing chicks. They can be raised without it, but they will grow much better with it. The only substitute for meat is milk and the best way to feed this is to let it sour and make cottage cheese of it and feed the chicks. When this is done make the cheese just as it would be made for the table, except that butter and cream are not necessary. It should be salted as it would be for the table. Where sour milk or buttermilk are convenient, there is nothing better than cottage cheese for the young birds. It is a perfect substitute for meat.

Where meat is fed let it be about 10 per cent of the feed that is given them. It is better to pay 5 cents for a pound of beef scrap than it is to try to raise chicks without it, if milk is not to be had in its place.

At three weeks the chicks may be fed a little whole wheat and cracked corn every day, gradually increasing the amount until these are the principal



WHITE COCHINS.

White Cochins are more to the fanciers' taste, because of the pure white plumage, which makes it very attractive, yet very few White Cochins are bred. They have the same characteristics as the other Cochin varieties, the only difference being in color of plumage. Standard weights are as follows: Cock 11 pounds, cockerel 9 pounds, hen 8½ pounds, pullet 7 pounds.

grain feeds they get. Put chick grit, crushed charcoal and oyster shells in separate boxes where they can get all they want of them and beef scrap may be fed in the same way.

By the time the chicks are four weeks old they will be able to handle whole wheat, kaffir corn or cracked corn easily, and they should be then fed as much as they will eat. I do not believe much in soft feeds, except for fattening chicks or old fowls for market.

Where a lot of pullets are being raised for layers we want them to grow strong bodies and big bones and whole grain and beef scrap will make these. Pullets intended for the laying yards should be raised on as large a range as possible. This gives them the strength that comes from exercise. If they must be raised in pens make them scratch for all the grain they get and feed them all the green feed they will eat. Fresh green grass or clover cut into short lengths will make them healthy and make them grow and the good poultryman will see that yarded chicks get all they will eat.

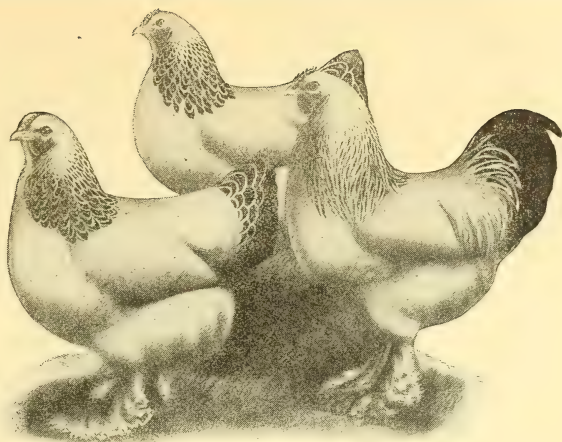
Even very young chicks should be kept in little covered runs made of wire netting where they can get green grass to pick at and these runs should be moved to fresh grass every day. This is a little trouble, but it pays a big wage for the time taken to do it.

Be sure and give water regularly. This is as important as any other part of the feeding.

Feed Formulas.

Below we give some of the most approved feed formulas. Most of the chick feeds are made after these formulas and they have been proved good many times. I know of one man who paid a large sum for one of these formulas and was satisfied that he got his money's worth. Buyers of this book get it for a fraction of a cent.

Cracked Wheat	25 pounds
Cracked Corn	12 pounds
Millet Seed	10 pounds
Kaffir Corn	25 pounds
Oat Meal	10 pounds



LIGHT BRAMAS.

Felch, Gold Coin and Shaw Strains.

The Light Brahmas, by unchallenged right, stand at the lead of all thoroughbred poultry. During the past thirty years, while all other breeds have had their "ups and downs" the Light Brahmas have stood their own ground, and today are as much praised and as highly recommended to the general breeder as they were thirty years ago. Any breed that can stand the test of rivalry so long and still continue to satisfy and please the thousands breeding them must have qualities of a high order. They are the largest of all our poultry, and furnish more pounds of flesh and eggs, in twelve months than any other breed of fowls on earth. They are well adapted for all purposes, and are so gentle, handsome and practical one cannot help but like them.

Standard weights are as follows: Cock 12 pounds, cockerel 10 pounds, hen $9\frac{1}{2}$ pounds, pullet 8 pounds.

Hemp Seed	2 pounds
Sunflower Seed	2 pounds

The sunflower seed and hempseed may be omitted if they are not convenient. Sometimes 10 per cent of screened beef scrap is added, but I prefer to feed this separately. A good many manufacturers load their prepared seed feed with grit. This is cheap and it is very profitable to them to add the grit to the feed as it sells at about six times as much as could be got for it alone. When one is making it the grit may be added but it is better to keep this separate also.

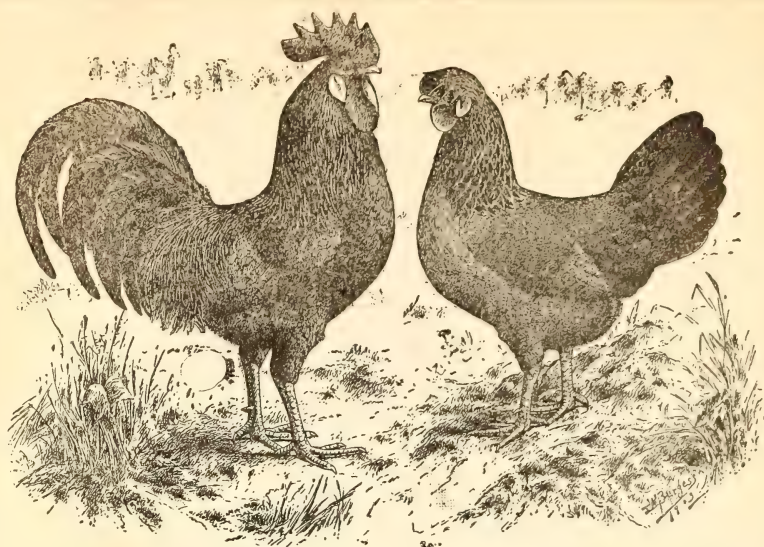
After the chicks are five or six weeks old a coarser and cheaper feed mixture may be given them. One of the best mixtures of this kind is made as follows:

No. 2, Scratch Feed

Whole or Shriveled Wheat	25 pounds
Coarse Cracked Corn	20 pounds
Millet Seed	10 pounds
Oats	25 pounds
Barley	10 pounds
Kaffir Corn, if convenient	25 pounds

This is improved if cracked peas and buckwheat, each 10 pounds can be added. Barley and Kaffir corn are about equally valuable and either may be used as a substitute for the sunflower seen is good in small quantities. It should never be more than 4 or 5 per cent of the whole quantiti of the mixture.

Where chicks are to be sold as broilers or young roasting fowls they may be put in fine condition by feeding them on the following mixture:



SINGLE COMB BROWN LEGHORNS.

The acknowledged queen of the practical egg laying breeds is the Single Comb Brown Leghorn, when judged by the standard of the greatest number of marketable eggs produced at least cost. Not only are the hens persistent layers, but they are extremely active foragers and waste no time in sitting. Like a good milch cow they put on little fat upon their bones, but all surplus nourishment to egg production. The cost of growing them is comparatively light, no more, perhaps than one-half that of Brahma or Cochin.

FORCING MASH.

Corn meal	5 parts
Wheat bran	2 parts
Beef scrap or animal meal	2 parts
Middlings or "red dog" flour	1 part

Mix these and then take of the mixture three parts and one of alfalfa or clover meal, moisten the whole with milk or hot water and feed. Just enough milk or water should be added to make a crumbly mash. The proportions are by weight in the above mixture as in the others.

Where a special forcing mixture is wanted for broiler chicks the following is very good:

BROILER CAKE.

2 parts bran or shorts.
2 parts corn meal.
2 parts corn meal
1 part wheat middlings
10 per cent beef scrap
5 per cent fine chick grit.

To each pound of this mixture add one of the infertile eggs taken from the incubator when the eggs are tested with enough skimmed milk to moisten the whole mixture. Bake well in a greased pan in a slow oven so as to have the cake cooked entirely through. This cake easily crumbles when well baked and forces chicks to grow very rapidly.

Separating the Sexes.

It is very much better to separate the sexes. Where the flock is kept for market purposes the cockerels should be sold as soon as they get to good broiler size, as they usually bring as much then as they will if kept longer and sold in the fall.

Where the cockerels are to be kept and sold for breeding purposes it is very much better to sell. Separate them from the pullets as they worry the pullets as soon as they begin to develop sexually and this keeps the pullets back more than a little.

The beginner may think that this is too much trouble but if he thinks so he is mistaken. The pullets are the money makers and they should be given every chance to mature as early as possible so as to make them early and good layers.

Too much pains cannot be taken with the young stock because the earlier it is got into condition the more profitable it is.

SILVER LACED WYANDOTTES.

For any purpose for which poultry is kept the Silver Laced Wyandotte is always ready to make a good showing. It is the pride of American fanciers and a delightful bird to handle and own, and is quiet and tame and not seeking mischief. As a market fowl it has a record of topping the most particular market in this country. As a layer it has twice in five years carried off the prize in the great annual Australian laying competitions, which are carried on under government supervision. In this country a Silver Laced Wyandotte hen has made a record of 804 eggs in four consecutive years, an average of 201 eggs per year, a record never before equalled by any hen of any breed.

Standard weights are as follows: Cock 8½ pounds, cockerel 7½ pounds, hen 6½ pounds, pullet 5½ pounds.

Chapter VIII

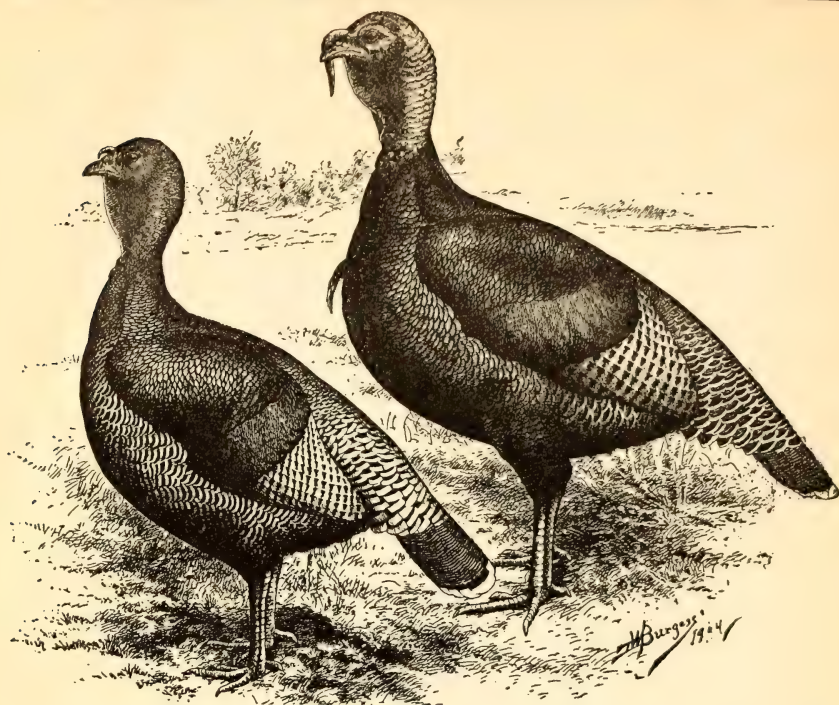
FEEDING FOR EGGS.

Anyone who thinks that he can make money by saving feed when feeding hens makes a fatal mistake. Hens must be full fed if they are to make good egg records. Some years ago the cry was set up that the reason hens did not lay more was because they were kept too fat and many a poultry keeper learned to his sorrow that this was not true. Repeated experiments by others, and my own experience, have taught me that laying hens must be kept fat if they are to do their best.

Much nonsense has been written about feeding for eggs. The average farmer who keeps cows produced on his own farm all the things necessary to feed hens so that they will lay as much as possible.

It is just as impossible to feed a poor layer so as to make her lay well as it is to feed a poor milker enough to make a good cow of her. Some hens will lay more eggs on scanty feed than others will with all the feed they can eat, but any hen will lay better when well fed than she will when poorly fed.

The farmer who raises wheat, corn and oats and keeps cows need not worry about feed for his hens that will make them lay. Wheat is a good egg food in itself, but it should not be fed altogether. Corn is a very good feed for laying hens, but it does not contain all the elements to make eggs and a hen must be fed the elements that go to make up eggs before she can manufacture them and produce them for her owner. Oats come very nearly being a perfect feed for hens, but they have so much husk that hens should not be fed oats all the time. I believe that as good a feed as can be made for laying hens is to feed wheat about half the time and oats and corn for the other half, giving milk, sweet, sour or in the form of buttermilk for them to drink. Don't make milk a substitute for water but if you have it give your hens all they will drink of it. With these grain feeds the hens need green stuff. On a farm they will get all



MAMMOTH BRONZE TURKEYS.

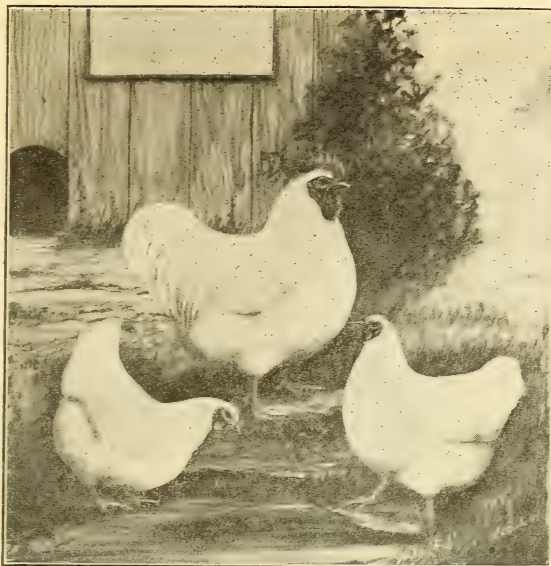
The Mammoth Bronze turkey is the acknowledged king of all turkeys. They have a brilliant metallic coloring that shines in the sun like the hues of the rainbow. Males and females are similar but in the female the color is not quite so brilliant or clearly defined. In the female the edging of the feathers is generally of a dull white or gray. The Mammoth Bronze is the hardiest of all turkeys, and the most extensively raised of any breed. They are good layers, many claiming them to lay over 100 eggs in a season, however, there are exceptions to all things. Most turkeys do not lay after July 1st. Adult cock, 36 pounds; cockerel, 25 pounds; young cock, 33 pounds; hen, 20 pounds; pullet, 16 pounds.

the green stuff they need during the months when green stuff does not grow this must be supplied to them. Any kind of vegetables will do such as cow beets—mangels—sugar beets, turnips, potatoes—boiled before being fed—cabbage and such things which are easy to grow anywhere. If all of these fail the hens will greedily eat the shatterings from clover or alfalfa hay and these should be gathered to them.

With a comfortable house and a system of feeding that supplies all these grains and vegetable and with a supply of grit, oyster shell and charcoal the farm flock should lay well in winter as they would under a more elaborate system of feeding.

However not every one lives on a farm and has these things of home production. For the benefit of these I give several methods of feeding which have been tried and found good.

To begin with I may say that very careful experiments have shown that whole corn is exactly as good for laying hens as cracked corn. The floor of the



WHITE ORPINGTONS.

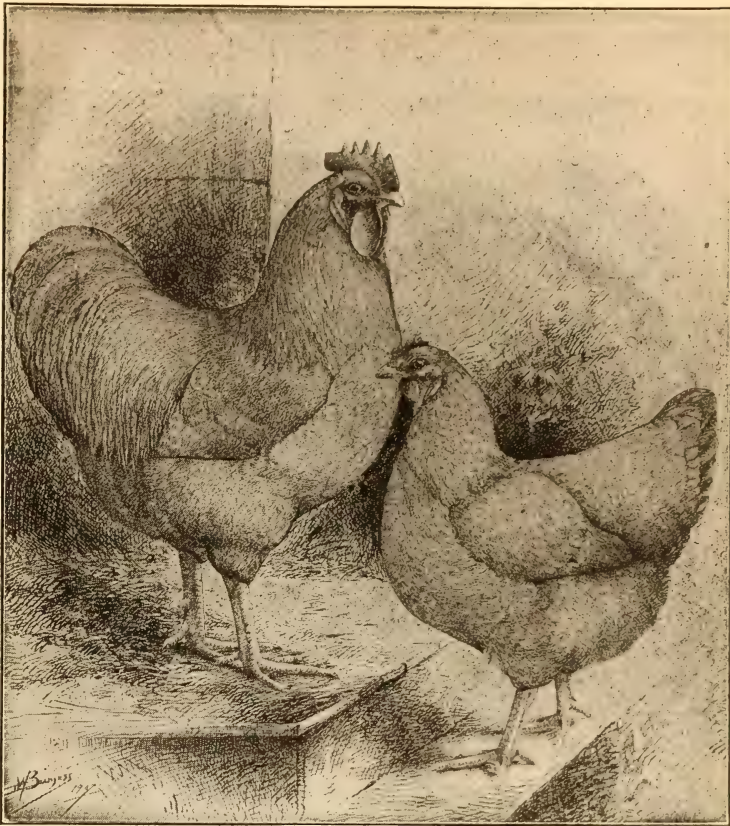
The White Orpingtons are comparatively large fowls, exceeding the Plymouth Rocks in Standard weight and are more compact in build. In manner of feathering they approach somewhat the Cochin type. Their compact build enables them to carry a great amount of flesh and they are claimed to be good layers. The White Orpingtons have great merit, being pure white in the first place and breeding very true to color. They are among the very best table fowls because they have such a deep, wide breast, and such thick thighs. The White Orpingtons are perfectly hardy and while they respond to good care they will do well under average conditions. They are also very hearty eaters and good foragers. Standard weights are as follows: Cock 10 pounds, cockerel $8\frac{1}{2}$ pounds, hen 8 pounds, pullet 7 pounds.

poultry house should be kept littered with a six-inch layer of clean, light, dry straw early in the morning a quart of corn should be thrown into this litter for each 10 hens. About 10 o'clock another feed of a mixture of two quarts of wheat and two quarts of oats for each 100 hens should be thrown into the litter. This is all the regular feeding that is done when hens are kept under the system I am now describing. At all times a supply of a dry mash is kept in a slatted trough where the hens can go and eat anytime they want to. The trough is along one side of the room with slats before it through which the hens can reach the mixture and yet not waste it. This mixture is made as follows:

Wheat bran	2 parts by weight
Corn meal	1 part by weight
Middling	1 part by weight
Gluten meal or brewers grains	1 part by weight
Linseed meal	1 part by weight
Beef scrap	1 part by weight

The brewers grains and linseed may be omitted if they are not convenient to get and a larger proportion of corn meal and beef scrap used. The hens do not like this mixture as well as they do the whole grain but they eat it a few mouthfuls at a time, and it certainly makes them lay.

This is a most convenient way of feeding fowls and several year's experience has proved it to be a good egg producing feed.



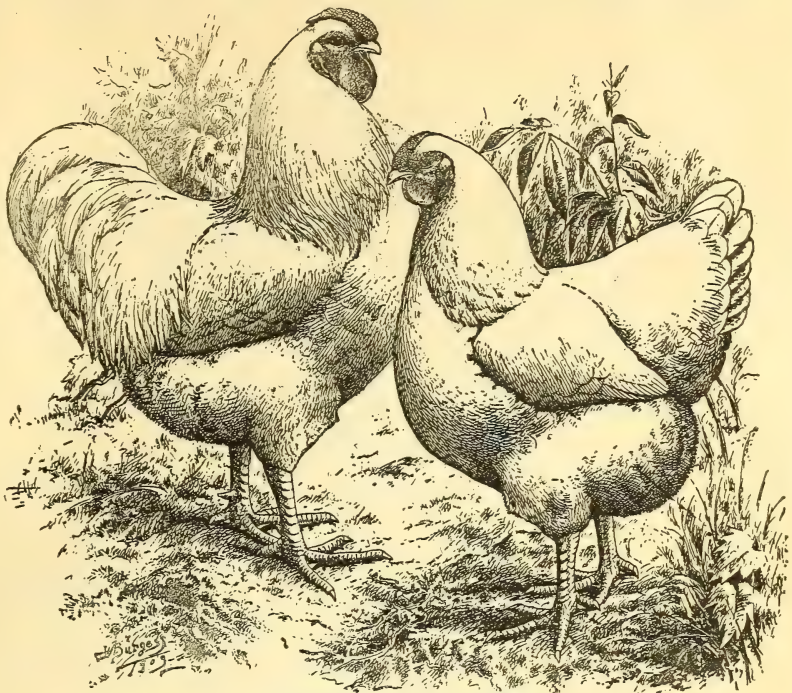
BUFF PLYMOUTH ROCKS.

In type and characteristics, except as to color of plumage, they are the exact copy of the Barred and White Plymouth Rocks. As their name implies, they are of a rich, buff color. They have quite heavy, nice, well rounded bodies, and a bright yellow skin. They have clean legs of medium length. This breed is well adapted to both the fancier and market poultrymen. Standard weights are as follows: Cock $9\frac{1}{2}$ pounds, hen $7\frac{1}{2}$ pounds, cockerel 8 pounds, pullets $6\frac{1}{2}$ pounds.

Do not neglect to keep the hens supplied with grit, oyster shell and charcoal as well as with plenty of pure water. No hen can lay eggs without water, for an egg contains a large percentage of water, and it is absolutely necessary that hens have water at any time they feel the need of it.

For the convenience of the reader I give a few formulas which have been used with success. It may be said that no one has yet discovered a formula for feeding that may be said to be the very best of all. There are a good many mixtures which seem to be about equally good and this makes it easy to fit the feed to the locality.

I have known a flock of hens which were never fed anything but barley and wheat to lay exceedingly well. They had a free range in a piece of woodland



WHITE WYANDOTTES.

White Wyandottes are the true sports of the Wyandotte family, having sported from some of the best yards in America and as a rule from the darkest matings. They are very popular and a great favorite among the fanciers. They differ very little from the laced varieties, yet I believe they are somewhat hardier, as they require less in breeding to retain their show points. For the novice they are often preferred to the other breeds, on this account. Standard weights are as follows: Cock $8\frac{1}{2}$ pounds, cockerel $7\frac{1}{2}$ pounds, hen $6\frac{1}{2}$ pounds, pullet $5\frac{1}{2}$ pounds.

and in this they got many insects and the necessary bugs and insects of various kinds to supply the meat feed they needed.

The farmer's flock which runs over the farm need not be fed meat during the summer, as they find worms and insects to eat and these are the very best form of meat feed for fowls.

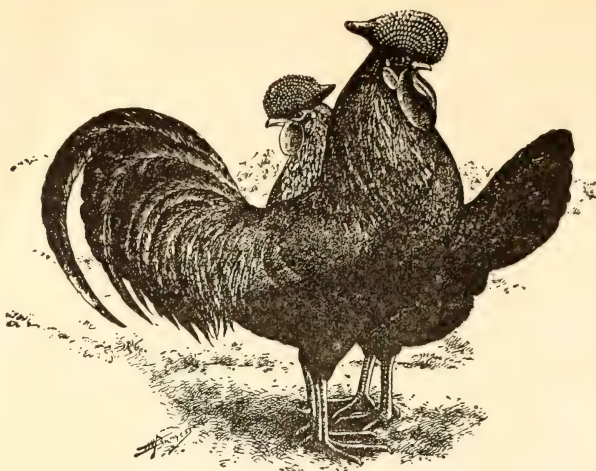
A good mixture is made as follows:

10 pounds wheat
10 pounds corn
5 pounds oats.

I prefer feeding each grain separate as the hens then eat all of each while, if they are fed a mixture the strong ones get the kind they like best and the weak ones must take what is left. In feeding this mixture I would feed wheat twice, corn twice and oats once, keeping up this rotation, feeding the grain in the morning.

In connection with this I would feed dry mash in a slatted trough which was kept under cover. The dry mash would be where the hens could get it any time they felt hungry. The following mixture makes a splendid dry mash feed:

Middlings	6 pounds
Corn meal	6 pounds
Bran	3 pounds
Oil meal	1 pound



ENGLISH RED CAPS.

The Red Caps are a hardy race of fowls, which came to American breeders from Derbyshire, England, where they have been known for many years as unrivalled layers of richly flavored eggs. The true value of these fowls as egg producers is very little known in this country. A few years ago we used to see them at eastern shows and they bid fair to become well known and appreciated, but of late they have been exhibited but little. Cock $7\frac{1}{2}$ pounds, cockerel 6 pounds, hen 6 pounds, pullet 5 pounds.

Alfalfa or clover meal	1 pound
Beef scrap	5 per cent

This is what is called a "narrow" ration. That is it is very rich in the elements that go to make eggs and for feeding laying hens in winter nothing could be better.

A word about beef scrap, oil meal and alfalfa or clover meal. The poultryman who thinks these feeds too high in cost makes a mistake. In these days all of these can be bought in almost any town and poultry supply houses and most incubator manufacturers keep them on sale. It pays to buy them for they are all good egg makers, and eggs is what every poultryman wants whether he keeps hens for market or for breeding purposes.

At the Kansas experiment station hens laid well when fed as follows:

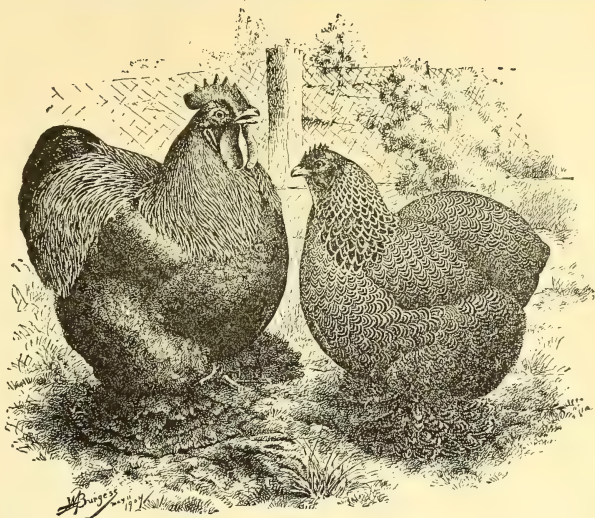
Grain Mixture—Two parts corn, two parts wheat, two parts kaffir corn, one part millet.

For the dry mash take two parts corn meal, two parts shorts, two parts beef scrap and one-half part alfalfa meal.

I give below the famous California mixture for feeding for eggs: Two parts middlings, 2 parts bran, 1 part corn meal, 1 part shorts, 1 part bolted barley, 1 part meat meal and one-half part bone meal. The hens were not fed any whole grain, the above mixture being fed in hoppers and kept before them all the time.

With the above directions for mixing feed the poultry keeper in any part of the country should be able to make a mixture which would do him good.

Remember that laying in hens in these days is the result of long training and the poultryman who desires large egg-records must select his hens for laying. In another chapter I tell how to select the best layers. In every case the hen that comes from a strain of line-bred layers will average better than the one that has not such careful breeding behind her. Getting the right start means much to the beginner.



PARTRIDGE COCHINS.

Partridge cochins, like the other varieties owes its origin to the Shanghai fowl, yet possibly has some of the Malay or Black Red Game in its make up. They are the same as the Buff in shape and size, differing only in color of plumage. Standard weights are as follows: Cock 11 pounds, cockerel 9 pounds, hen $8\frac{1}{2}$ pounds, pullet 7 pounds.

Chapter IX

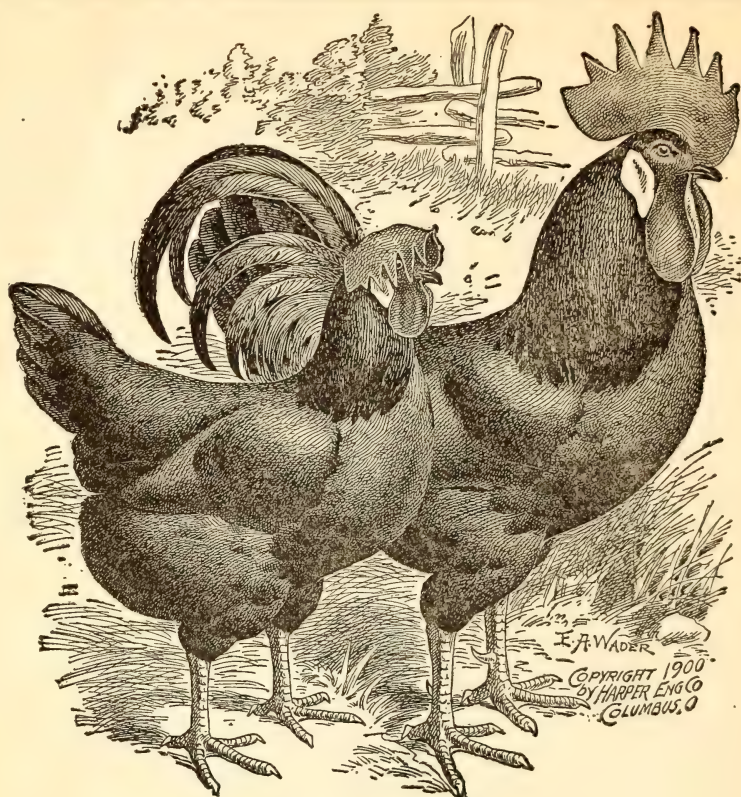
THE "SECRETS" OF THE POULTRY BUSINESS.

Two or three books have been widely advertised as making public all the "secrets" of the poultry business and several promoters have got rich selling at a high price certain secrets of the business. Most of these so-called secrets are such as the poultryman should know, but I do not believe in the secret business myself. I want every poultryman to know all about the business so every one can succeed, for the more that they succeed the faster the business will grow and the better for every one concerned.

The so-called "secrets" that I make public in this chapter have been sold at from one to ten dollars each. Purchasers of this book get them practically free, as I throw them in for good measure.

Feed for Fifteen Cents a Bushel.

The poultry papers have contained advertisements from several different persons offering for from one to five dollars to tell how to make feed for 15 cents a bushel or for 10 cents a bushel or for 8 cents a bushel, each advertiser trying to make it appear that he had the secret of making something from nothing. As a matter of fact there is no process by which more nutrition can be put into a bushel of grain than is in it in its natural state, but there are processes which have the same effect as partially digesting grains and fowls can eat more, and thus get more benefit. These prepared grains are also more digestible and a bushel is worth more as feed after, if it has been prepared, than it was before. Simply cooking wheat, corn or oats makes them more valuable than it was before. before being cooked make feed for fifteen cents a bushel, one has only to sprout a bushel of oats when the swelling of the oats and the growth of the sprouts will make three bushels of feed from one bushel of oats, but hens will eat three times



BLACK MINORCAS.

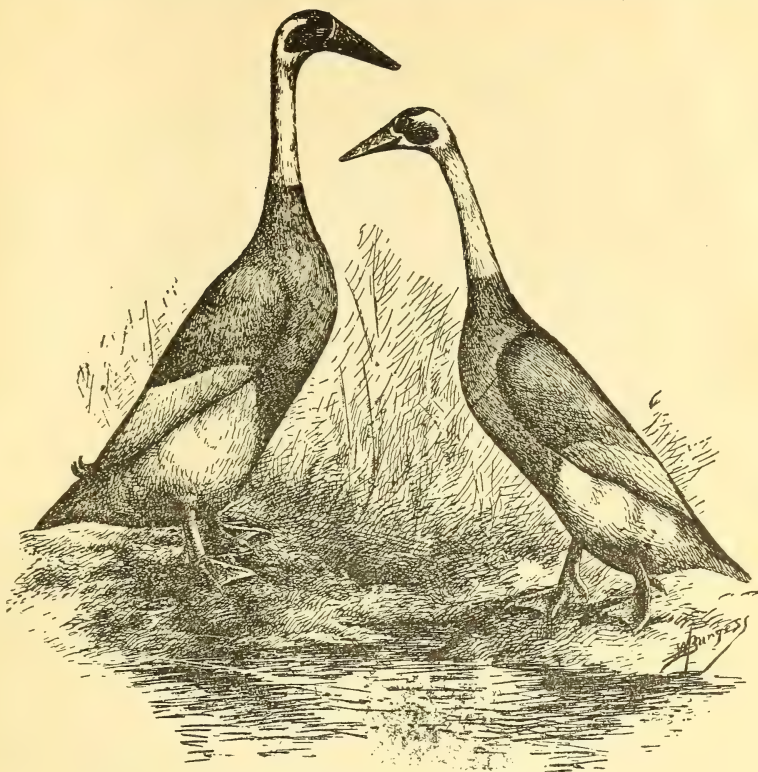
The Black Minorca is a well-established breed of English fowl, belonging to the Spanish varieties, and wherever bred, are considered a valuable breed; are hardy, both as fowls and chicks, easily raised, mature early, and pullets commence laying when very young. They are non-sitters, small eaters, splendid foragers, and without doubt very profitable. Their plumage is a pure black with a green or metallic luster. Their legs are nice and smooth and medium length. Standard weights are as follows: Cock 9 pounds, cockerel $7\frac{1}{2}$ pounds, hen $7\frac{1}{2}$ pounds, pullet $6\frac{1}{2}$ pounds.

as much of it, so the advantage is simply in having a more palatable and more digestible feed than the natural grain would make.

There are several methods of sprouting oats. I give two or three of them.

Take a box large enough so that a bushel of oats will cover the bottom four inches deep. Bore several half inch holes in the bottom. Then put the oats in and wet them well with warm water, stirring them about until the grains are all wet. Keep the box in a rather warm place, a good cellar in cold weather will do or keep them back of the stove in the kitchen. One breeder that I know sprouts his oats in his brooder house. Wet the oats every day with warm water and in from ten to fifteen days they will be a mass of roots and sprouts, making a combination of green and grain feed that promotes egg-laying very successfully. Feed the hens these oats and they will do the rest. The process of sprouting turns the starch in the oats into a form of sugar which hens like and this is very easily digested so the hens get the full benefit of the oats.

If one has a cellar a wide shelf may be made long enough to hold several

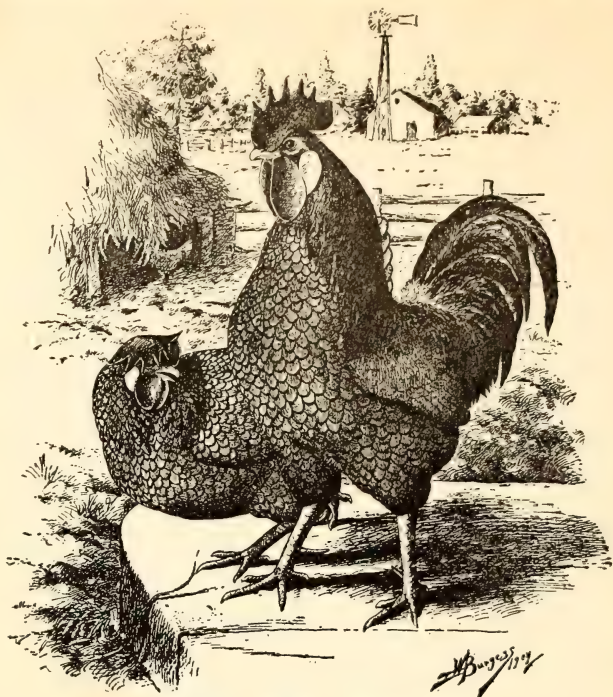


INDIAN RUNNER DUCKS.

Indian Runner ducks are making more friends all the time. From the day they were introduced into this country down to the present time, they have added to their reputation as the best laying fowls of any breed ever introduced to the poultrymen of any country. They are not as large as Pekins or Rouens and are not recommended as a market duck, although they produce very finely flavored and fine fibered flesh. It is as egg machines that they are most highly esteemed. It is not uncommon for an Indian Runner duck to lay 200 eggs in a year and nearly every one will lay from 150 to 180. They endure small yards better than any other water fowl. They are small eaters, healthy, never troubled with insect enemies, roup, or any of the diseases of other fowls. Standard weights, drake $4\frac{1}{2}$ pounds, duck 4 pounds.

bushels of oats and a larger quantity may be sprouted at one time. Begin at one end and as fast as a vacant place is made, put in fresh oats, and in this way a constant supply may be kept on hand. Do not put the oats too deep on the shelf or in a box as they are likely to rot if this is done. Three or four inches is about right, but never more than six inches. Always stir and wet with warm water and a good stirring is enough. One soon learns how much water to use. It is not necessary to use enough so it will drip through the shelf, after the oats are well wet.

A very good method for summer is to make a frame on the ground two feet wide by eight feet long. This may be made of 1x4 boards. Set the frame on level ground and put two inches of oats all over the ground. Wet these and then cover with two inches of soil. If the oats are soaked over night before being put to sprout, they will come up quicker. When the sprouts show above the



BLUE ANDALUSIANS.

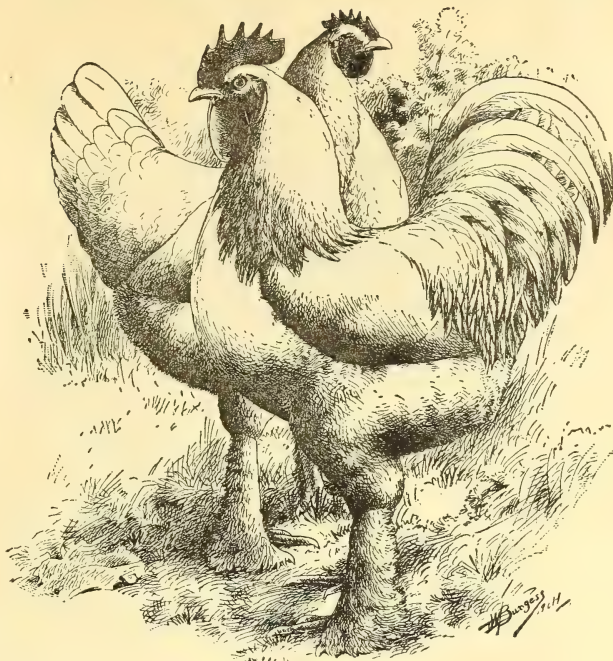
One of the oldest of the Standard varieties and classes among the Mediterranean varieties, they derive their name from Andalusia, a province in the southern part of Spain. They are a graceful bird and strikingly handsome, somewhat on the Leghorn order of build, but larger, yet smaller than the Minorcas. The plumage is a slaty blue and bluish black throughout, with shanks of the same shade. They are good layers, just a fair table fowl, but a trifle small. Standard weights are as follows: Cock 6 pounds, cockerel 5 pounds, hen 5 pounds, pullet 4 pounds.

ground the oats are ready to feed. Sift them out in blocks with a spade and throw oats and soil to the chickens. It will be found that a good many insects have burrowed in the soil as it is damp and warm and these go to the fowls as well as the sprouted oats.

Preserving Eggs.

It is a very easy matter to preserve eggs for eight months to a year. Usually eight months is as long as eggs need to be preserved, and if they are kept by the following method they will keep that long and be as good as new, good judges having been fooled by thinking preserved eggs were fresh ones.

This secret has been sold for as high as ten dollars: Take a perfectly clean vessel of some kind, so it is not made of metal. A keg or stone jar makes a good container, but the keg, if a keg is used, should be perfectly clean and free from odors or grease. Fill the container half full of a solution made by mixing ten parts of water with one part of silicate of soda, commonly called water glass, first having boiled the water and letting it get cool. Into this solution put the eggs as they are gathered, being careful that every egg is perfectly fresh and that the shell is not cracked. Put the eggs in the solution as they are gathered. If they show a tendency to rise to the surface put a board cut to the proper shape over the solution to hold the eggs beneath the surface. Keep the eggs in the cool-



WHITE LANGSHANS.

White Langshans are sports from black variety. They are the exact counterpart of the Black except that their plumage is pure white, and their beaks a little lighter in color. Standard weights: Cock 10 pounds, cockerel 8 pounds, hen 7 pounds, pullet 6 pounds.

est and dryest place you have and do not disturb them any more than is necessary.

This solution cannot be used a second time. Eggs put down in this solution in May will be found to be perfectly good the next December and they have been kept until the following spring in perfect condition. When the eggs are to be used take them out, wipe them dry at once and they cannot be told from fresh eggs.

How to Fatten Fowls Quickly.

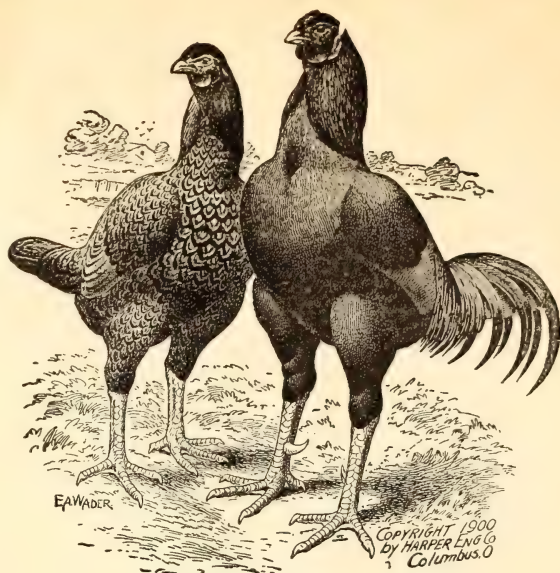
Shut the fowls in a pen where they will not have much room to move about. Feed them all they will eat of a mixture of one part each of cornmeal, alfalfa meal and wheat bran. Mix with hot water and allow to cool before feeding.

Here is another: 100 pounds of corn meal, 100 pounds of wheat middling and 40 pounds of meat meal. Feed this for eight days and after this add 10 per cent of beef tallow.

Here is a fattening mixture for young fowls: One part each of corn meal, ground oats and wheat middlings. To this add one-half part of linseed meal.

The last two mixtures should be mixed thin enough so they will just drop off a wooden spoon or paddle.

Give all the corn they will eat once a day and feed the ground mixture twice a day. These mixtures should fatten fowls or young stock in from ten to fourteen days. Sell as soon as fully fattened as they lose their appetites soon after and will not gain weight after losing a little.



CORNISH INDIAN GAMES.

This is one of the most popular varieties. It is a good general purpose fowl, having the qualities of the market fowl, i. e. compactness, yellow legs, heavy weight, from which there is but little waste in dressing, and being a quick grower, they produce a fine broiler in a short time, because they have short feathers, the nutriment required to put feathers on other breeds going to flesh, which is more juicy and tender in this breed than in a young turkey. Their breasts are very full. The Indian Game hens are good sitters and mothers, and the young chicks are very hardy. In color, the fowls are quite pretty, the bright brown shafts and glossy green lacing making a beautiful contrast. Standard weights are as follows: Cocks 9 pounds, cockerel 7½ pounds, hens 6½ pounds, pullets 5½ pounds.

How to Make Pullets Lay Early.

After the pullets are six weeks old feed them five parts wheat and four parts of cracked corn in the morning, giving them all they will eat. Keep in a slatted trough a dry mash made as follows: 45 pounds of corn meal; 10 pounds ground kaffir corn; 10 pounds ground oats; 4 pounds meat meal or beef scrap; 1 pound grit and granulated bone. Keep this dry mash before them all the time. Give them a good range to run over and they will be laying at five months of age.

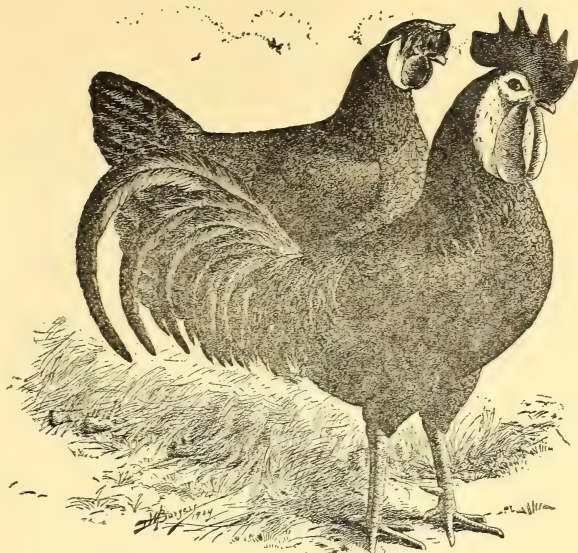
How to Select Good Layers.

The good laying hen always has a bright red comb and face. She is out early in the morning and goes to bed later than the poor layers. She is bright and active and always ready to get into mischief at the first chance because she is full of life and activity.

A good layer often waddles when she walks something like a duck. This is because she is wide and deep behind.

A good laying hen is usually a fat one, but she is not soft to the feel of the hand. Pick up a good layer and she will be found heavy for her appearance and her flesh will be firm and hard.

The hen of medium size for her breed will usually lay more than the very



WHITE FACED BLACK SPANISH.

The White Faced Black Spanish fowls belong to the Mediterranean class. They are a non-setting breed, and are as hardy as the Asiatics. The Spanish are much larger than Leghorns, being as heavy as Wyandottes. As layers they are not surpassed by the Leghorns. They lay a large, white egg, and lots of them. Their plumage is a rich, glossy black throughout. Their combs and wattles are red, and their white faces and lobes peculiar to the breed contrast with their black plumage. Chicks grow very fast, maturing at an early age. Their meat is fine grained, tender and sweet. Standard weights are as follows: Cock 8 pounds, cockerel 6½ pounds, hen 6½ pounds, pullet 5½ pounds.

heavy or light hen.

They have a saying in the old country that if the cockerel that crows first is mated to the pullet that lays first the pullets from this mating will be good layers.

Here is a method of telling good layers which comes from Australia: At the rear of the body of a hen just below the vent two bones can be felt. These are the lower points of the shell bone that arches over the back, corresponding to the hip formation in human beings. If these bones are close together the hen is a poor layer and the wider they are apart the better the hen will lay. If three fingers will lie between the space between these bones the hen is an excellent layer. This secret has been sold in this country for as much as ten dollars.

Here is a method of telling a good layer without touching her. It is the method followed by an English poultryman who made a large fortune in the poultry business:

On each side of the comb of a hen there will be seen short feathers which cover the top of the head. If these feathers stand straight up, or are inclined to turn forward the hen will be a good layer. The more they incline to turn the points forward the better the hen. If these feathers lie smoothly pointing backward the hen is not a good layer.

Grundy's Famous 8-Cents-a-Bushel Feed.

This way of making feed cheaply has been exploited by a Mr. Grundy, but it is not original with him as an eastern poultryman told him to make it

years ago. Cut alfalfa or clover hay into quarter-inch lengths. Fill an eight-gallon tub with this cut hay and in the evening pour over it two gallons of boiling water stirring it well. Cover the tub with a blanket or piece of carpet and let stand until morning. In the morning add to the steamed hay one quart of wheat bran and two quarts each of wheat middlings and corn meal, mixing the whole thoroughly.

Mr Grundy claims that he has increased the weight of fowls from two to three pounds in from ten to fifteen days on this very cheap feed.

An Egg Feeding Mixture.

Take of any ground-grain commercial poultry feed, 4 measures; gluten feed, 3 measures; wheat bran, 1 measure; alfalfa or clover meal, 1 measure, and meat meal, 1 measure. Mix thoroughly and keep before the hens in a slatted trough, all the time. For grain feed give in litter in the morning one quart of yellow corn for each 25 hens, and at noon one pint of good wheat and one pint of oats for each 25 hens. Keep water, grit, oyster shells and charcoal where the hens can get them at any time and feed green feed every day if the hens are kept yarded. This is for commercial laying hens. It is too stimulating for hens the eggs of which are to be used for breeding purposes.

Chapter X

REARING TURKEYS.

Turkey raising is very profitable and where one has a large free range for them they are the best money-makers of all our poultry, but no one should try to keep turkeys on a small range. They are naturally wild and want to range far and if they cannot do this they will not do well.

There are several good varieties of turkeys, but the principal ones are the Bronze and White. These two are the favorites almost everywhere, although the Bourbon Red turkey is a good variety.

One tom turkey will serve a dozen hens. It takes only one service to fertilize a whole laying of turkey eggs, and some claim that one service will fertilize all the eggs a hen will lay in a season.

The turkey hen likes to steal away and hide her nest in some secluded spot. If barrels are laid on their sides in fence corners or under bushes where they are not easily seen, with some hay in them and some bushes carelessly thrown over them, the turkey hen will usually select one for her nest. Care must be taken not to disturb her when on the nest and the eggs must be removed carefully or she will desert her nest. A good many put imitation eggs in the nest for each one they take out. Others leave the eggs in the nest until enough are laid to put under a common hen, while others leave but one egg in the nest, taking one out each day.

A good Bronze hen will lay 3 to 5 dozen eggs in a season. She will lay one clutch or laying, and then want to sit, but is easily broken up by destroying her nest. She will soon begin laying again and is once more broken up. By the time she has finished the third laying the weather will have become warm and the turkey hen may be allowed to sit and hatch her last laying.

It is best to hatch the earlier layings under common hens, as they are more domestic and more careful mothers than turkey hens.

When the young turkeys are hatched, put them in a brood coop that has a dry floor and give them a little yard to run in. This may be 4x8 feet in size, and there should be fresh green grass in it. Move this yard every day to fresh grass.

Give water from the first and for the first week feed the young turkeys on curd made by scalding curdled milk or from buttermilk, squeezing this dry and adding a very little cayenne pepper. If onion tops are to be had, or whole young onions, chop these fine and mix with the curd. After the first week gradually begin feeding a little cracked grain or a cake made by mixing half and half corn meal and wheat middlings with sour milk and soda and baking in a slow oven. This cake is made the same as the old-fashioned "johnnycake" and if an egg is added in mixing it, it will be better.

Keep the young turkeys confined for about three weeks. After this turn

them out with the hen mother after the dew is off, if there is no prospect of rain, and let them follow their mother and begin to learn to hunt for bugs and worms, their natural feed.

Gradually they will learn to wander farther, but they must not be allowed to get wet or they will almost surely die.

As they grow larger the soft feed may be discontinued and cracked wheat and corn given to them.

Keep them well under control until they begin to shoot the red after which they will endure without harm any kind of weather and may be allowed to roam at will. By shooting the red is meant the time when they begin to show the red, warty growths along the neck (carunculations).

Turkeys should always be fed once a day, at evening, to keep them in the habit of coming home at night. If this is not done they will get the habit of sleeping wherever night finds them, wandering farther and farther away until they live entirely in the fields and become half wild.

Turkeys almost raise themselves after they get started and are the best insect killers we have, they wander over the fields, doing but little damage, although a great many people think they are worse than a cyclone in a grain field. The truth is that they do not care for grain if they can get grasshoppers and other insects and eat but little of it until after frost comes and insect food becomes scarce.

It does not cost any more to raise a pound of turkey than it does a pound of pork and the price is always from three to four times higher.

In buying turkeys to begin breeding, take great care to get a male which is not related to the females, for they do not stand in-breeding and many flocks are now so closely in-bred that they have lost constitutional vigor.

I might write a book about turkey breeding and not give any more real information than is contained in this chapter. If these directions are followed success will come to the breeder.

Chapter XI

BREEDING DUCKS.

Ducks are very profitable and a good many people in this country have made comfortable fortunes by breeding them for market. All the large cities use thousands of young ducks every season and on Long Island and in the states of New York and Massachusetts may be found many large duck farms.

Ducks are very easy to breed as the young are very hardy and the old ones never have such diseases as roup or other parasitic diseases.

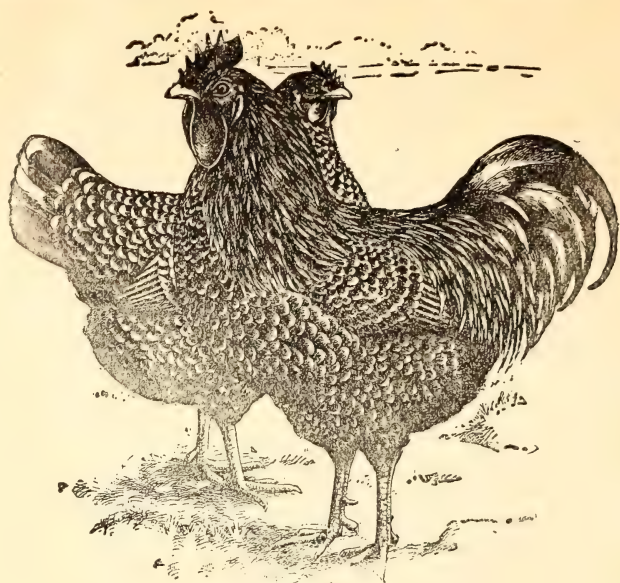
Lice never trouble ducks and they live and grow rapidly on coarse and cheap foods.

While several breeds of ducks are recognized in this country it will not be necessary for me to give particular mention to more than two breeds. For market purposes the Pekin Duck is recognized as being the best, while for eggs, the Indian Runner duck is making fame rapidly.

On the large duck farms incubators are used exclusively in hatching ducks. Ducks' eggs seem to hatch in an incubator easier than any other kind, and when a young duck is once out of the shell it may be counted on as likely to grow to market size without a single mishap.

On farms chicken hens are mostly used to hatch ducks, although ducks are good sitters and good mothers. The trouble with mother ducks is that they like to wander off and find water, while a chicken hen will stay around close to home.

On the large duck farms ducks are fed special mixtures, but the ordinary farmer's flock will get along nicely on the kind of feed little chicks are given with this exception, that ducks like wet feed and do best when fed mash made of corn meal, wheat middlings and beef scrap. A good mixture is one part of corn meal, two parts of wheat middlings with from one twentieth as to one-eighth as much meat meal as there is of the other two ingredients of the mash. These should be mixed into a stiff dough and fed to the ducks. Ducks also thrive on tender green stuff and it will pay the duck raiser to plant a piece of lettuce on purpose for the ducks. This is easily grown and young ducks will almost live on it.



MOTTLED JAVAS.

The Mottled Javas are the result of a cross of the Blacks with a large white hen, so the records say, but they neglect to state the breed to which the hen belonged, but rather imply that she was not a thoroughbred at all. The mottled variety is the same general characteristics as the Black variety, differing only in color, which is a mottled black and white. Standard weights are as follows: Cock $9\frac{1}{2}$ pounds, cockerel 8 pounds, hen $7\frac{1}{2}$ pounds, pullet $6\frac{1}{2}$ pounds.

Ducks do not need water except to drink, and this should always be supplied while they are eating, as they like to eat a few bites and then take a swallow of water.

Give them a big pan of water and set this on a platform two or three inches high, so they must get on the platform to get a drink. They will get into the water if they can, and foul it in a short time, therefore, it is better to have some sort of a slatted cover for the water vessel so they can get a drink without getting into the water.

Ducks are voracious eaters and should be kept full all the time, as they grow in proportion to their appetites. A Pekin duck will make five pounds in ten weeks and is then ready to sell in the market.

Pekin ducks are also profitable as egg layers, although they do not lay quite as well.

Ducks may be fed whole grain if desired. A good plan is to have a trough of good size with slats over the top, and throw their grain into water in this trough. They delight in fishing it out and they get more good from it in this way.

Indian Runner ducks are the best laying fowls we have. It is not uncommon for them to lay 200 eggs in a year, and they keep right on laying for two or three years after they begin. I have known Indian Runner ducks to begin laying at five months old and keep on laying right through the winter. Indian Runners are too small for market ducks, but their flesh is considered very good. They weigh from $3\frac{1}{2}$ to $4\frac{1}{2}$ pounds at full size. They do not make as much noise as other ducks. They do not waddle like other ducks, but run swiftly, and a flock of them holding their heads high and running along in perfect time,

wheeling and going in the opposite direction, with the precision of a troop of soldiers, is worth seeing.

The color of the Indian Runner and Pekin duck eggs are generally white, yet a great many of the very best specimens lay a greenish colored egg. This does not indicate impure stock.

The Indian Runner is becoming very popular and promises to maintain its position if it is not spoiled in trying to breed to fancy color points.

The breeding of ducks would no doubt be as profitable in the West as it is in the East, but no one seems to take the work up. Now that Indian Runner ducks are becoming recognized as the very best layers among all our fowls, I look for a great increase in the interest in duck breeding and believe that any one who makes a start soon will find a demand for all his surplus for breeding purposes for a long time to come.

Chapter XII

BREEDING GESE.

The breeding of geese is not followed as a regular business anywhere in this country. It is not even followed as a specialty except in a few very small districts where geese are given special attention for certain demands of the market.

There are two kinds of geese which are kept especially for market purposes in this country. The Toulouse, a gray breed with white markings, and the Embden, a pure white breed. Both these breeds make very heavy weights and bring the highest market prices. Toulouse geese fattened by special feeding to become weighted down with fat frequently sell in eastern markets as high as twenty to twenty-five cents a pound. These very heavy geese are bought by Hebrew families, who use the fat in the place of lard as their religion forbids them to use lard as food. Geese are usually hatched by chicken hens, a hen being able to cover about five eggs. The eggs hatch in thirty days and the goslings must be carefully watched for a few days, as they are rather tender.

They are fed much in the same manner as young turkeys at first, but soon learn to pick grass and then they begin to need less coddling as they are natural grazers and when once fairly started they need no other feed but good pasture until the time to begin feeding them grain and ground feed to fit them for market.

On many farms geese might be kept with great profit as they could be pastured on wet or marshy fields and turn such places to good use. They need a plentiful supply of water to drink and if they can have a small pond to swim in they will thrive better as they will be certain of a plentiful supply of drinking water.

Those who breed a number of geese usually feed them a little grain during the whole summer after they are hatched, just to keep them accustomed to a grain ration and to keep them tame, but they must have good pasture if they are to make large size and strong frames on which to lay a heavy weight of fat when they are ready to pen up and feed for market.

At one time the turkey was the distinctive Thanksgiving bird, but lately the goose is taking the place of the turkey to some extent, and for the Christmas trade the goose is the recognized bird of the season.

No one need be afraid of losing money on geese. They are more profitable than hogs, and are not subject to diseases of any kind, which cannot be said of turkeys.

Geese can be raised cheaper than any other kind of poultry and cheaper than pork or beef. They are always in demand at good prices and the demand is increasing. Our foreign immigrants are teaching Americans that the goose is a fine table fowl and since wild geese have become scarce the tame goose is coming more and more into favor.

When geese are ready to be fitted for market they should be put into a small lot where they can have all the water they will drink. They may be fed on corn, buckwheat and oats. Often they are fed on corn alone, as this is very fattening and the geese have large frames and plump muscles when they come off the pasture so the only thing needed is to put on the fat.

In a few sections a special cooked feed is given the geese that are being

fattened, this being made into balls and put down their throats until no more can be forced down, but this requires special training and a description of the process would not do any good in this place.

The goose is not to be despised when considering profitable poultry, and there is room enough in this country for a great many more than are now kept.

Chapter XIII

COMMON DISEASES OF POULTRY.

Blackhead in Turkeys.—This disease is commonly located in the liver. It often causes the head to turn a dark purple, hence its common name, but this symptom does not always appear. If turkeys begin to droop and die, one that has died should be cut open and the liver examined. If ring-like sores are found on the liver the disease is blackhead. There is no cure for this disease, and where it appears in a poultry yard, turkeys should be disposed of and none kept for several years. Chickens and other poultry rarely have blackhead, although they occasionally do.

White Diarrhoea in Chicks.—This dreaded disease has been spreading for several years, and has so far defied treatment. In another place in this book, (Chapter VII) a system of disinfecting incubators, eggs and brooders, which has proved useful in warding off the disease, which is caused by germs which attack the chick at the time it is hatched and increase until they destroy life in from ten days to four weeks, is given.

Bumble Foot.—This is really a stone bruise caused by jumping from a fence or other high place onto some hard object. The bottom of the foot is bruised and swells, pus forming under the sole. The remedy is to watch the swelling until it is ready to open and then open with a sharp knife, wash with warm soap suds and bathe with peroxide of hydrogen. Keep on a well littered floor and anoint with carbolized vaseline until the wound heals.

Chicken Pox or Sorehead.—This is caused by germs and is very contagious. It may be carried from one yard to another by stray dogs or by being carried on the boots of visiting poultrymen who have been in yards where the disease prevails, and it would seem that it is sometimes carried in the air. The treatment is to thoroughly disinfect the house and yards with cresol. Wash the heads of the sick fowls with warm soap suds and then bathe with a mixture of peroxide of hydrogen and water, half and half. After this anoint the head with carbolized vaseline. It is best to separate the sick from the well fowls and take from among the well ones every fowl which begins to show signs of the disease.

Gapes.—This disease is caused by worms in the throat. The worms are hatched in the ground and chicks pick them up when they make their way into the windpipe and attach themselves to the lining. When they become numerous enough to obstruct the breathing they cause gapes.

The disease persists year after year when it once appears. If chicks are not allowed to run out until the grass is dry in the morning or after rains the gape worms will never trouble them. The worms crawl up on grass blades at night and during rains and return to cover under ground as soon as the grass becomes dry, and the chicks do not get them. The worms may be removed by stripping a quill feather until only a little brush is left at the end, and running it down the windpipe with a twisting motion. This entangles the worms in the feather and they are drawn out. Shutting the afflicted birds in a small space and sifting slacked lime over them until they cough often dislodges the worms.

Liver complaint.—This disease is becoming more common. It is shown by the dark color of the comb and frequently by lameness and greenish droppings. In its first stages it may be relieved by giving the fowl a liver pill every other day for a week. After it becomes chronic, it is incurable.

Limberneck.—In this disease the sick fowl cannot hold its head off the ground. It is caused by eating decaying animal matter. Dead animals and fowls, even dead rats and mice, should always be buried deeply or burned so fowls cannot get at them to eat them. This disease sometimes can be cured by giving the sick fowl three or four drops of turpentine in a spoonful of sugar, but more often the bird dies.

GENERAL INSTRUCTIONS FOR OPERATING INCUBATORS AND BROODERS.

Any of the standard makes of incubators will be found to outdo sitting hens in every way. The advantage of using incubators instead of hens is that they never break up, you can set them at any time you please and a 200-egg machine will hatch out at one time as many chicks as you could get from fifteen or more hens.

The makers of incubators have the art of incubation down so fine that any one running one of the standard makes of today, according to the manufacturer's directions, cannot help but get even better results than it would be possible to get from hens with the same eggs. Be sure to get strongly fertilized eggs from good, hardy, vigorous, thoroughbred stock.

It might not be out of place here for me to give the reader of this book a few pointers from my experience, which they may profit by. Any well ventilated room where the temperature can be kept even is the proper place to operate an incubator. In this respect, there is nothing that can equal a good cellar. In such a place, a machine with a regulator worth the name can keep the temperature of the egg chamber just what it should be through the hatch. Don't expect a machine to hatch chicks from any old thing in the shape of eggs. Be sure of the vigor of your breeding stock. No machine on earth can incubate a strong chick from a weak germ. Too much care cannot be taken in selecting a good grade of highest oil to use in the lamp if you want it to do its best.

If you are operating a hot water machine, fill the tank full then draw off about one quart, if you fill with cold water, but if you fill with hot water you do not need to draw any off. When water is heated it expands. At the end of every hatch add a pint or a quart of water as the case may require to compensate for evaporation during hatch.

Set the machine level and run it two or three days before putting in eggs; or at least until you thoroughly understand it and can keep the temperature about right for 24 hours; place the thermometer about six inches from the door in the end next to the lamp with bulb of thermometer about one and a fourth inches from the bottom of tray as that is about the distance eggs will be when in the machine. It sometimes happens that the heat is higher in one end of the incubator than the other end, can easily be overcome by slightly elevating the cold end, raising the cold end one-half inch will make one or two degrees difference in the temperature. Move the thermometer from one end to the other when testing for an even distribution of heat before you put in the eggs to see that the temperature is right all over the machine then it will give you no more trouble.

The proper position of the thermometer is lying between two fertile eggs with the top of the bulb about on a level with the top of the eggs. It does not differ materially whether the eggs are fertile or not until after the tenth day of incubation. Every one-fourth inch nearer the tank you get makes a little more than one degree difference in heat.

Proper Temperature.

The proper temperature for all kinds of eggs is about 102 the first week and 103 the last two weeks. Any variation of temperature from 90 degrees to 106 for a short time will not spoil a hatch. I never like to have the heat get above 103 the first week and the last eight or ten days of incubation if the temperature should run up to 105 occasionally do not be alarmed. But try to keep the heat as near 102 and 103 as you can. While hatching the temperature often runs up to 104 and 105, which will do no harm providing the bulb of the thermometer rests on a live egg, otherwise the temperature of live eggs would be two or three degrees warmer than the thermometer indicates.

Putting in the Eggs.

Always run your machine two or three days before putting in the eggs or until you thoroughly understand the regulator and can keep the temperature about right for twenty-four hours. After you have made one or two hatches this is not necessary. Then just run long enough until you can adjust the regulator to 103 degrees. One of the most important points is to get good eggs.

The fresher an egg is the better it will hatch. Eggs two weeks old will hatch fairly well, but not as good as eggs a week old. I do not like to set eggs over a week or ten days old. We never send out eggs over a week old and generally speaking, they are not over two days old. Put all of the eggs in the machine at one time. Eggs cannot be added at different times, as the animal heat would be different. It is not necessary to put in all the eggs that the incubator will hold at one time. If you wish to put in only 100 or less in a 200-egg machine you cannot add more eggs until that hatch is completed. Turn the eggs twice a day, beginning on the morning of the second day. After your incubator is regulated and ready for the eggs and you put the eggs in, the thermometer will fall so low you cannot read the temperature. It will take four to eight hours for the temperature to get back to 102 degrees. Now do not adjust the regulator to get heat up quickly. The eggs must be warmed up very gradual and if the heat does not get up to 102 degrees in twenty-four hours just adjust the regulator slightly by loosening the adjusting screw so the cap over the heat flue will drop down over it, then usually the temperature will raise one or two degrees before the cap of the heat flue will again rise.

What is a Good Hatch?

Some people think all eggs will hatch. This is a mistake. Usually about 75 per cent of the fertile eggs will hatch, sometimes many more. Other times a great many eggs will show fertile the first test but the germs are so weak from some cause that they will die at all stages of incubation. About 75 per cent of the fertile eggs is the average hatch. Sometimes we do not get so many and other times many more. Now this is the case, no matter what kind of an incubator you use or whether you set eggs under hens or in an incubator. As a usual thing from ten to fifteen per cent of the eggs prove infertile. This varies according to the season of the year and conditions of the hens that lay the eggs.

Where Shall I Set My Incubator?

No doubt the best location for an incubator is in a good cellar or basement. The temperature is much more even in a place of this kind and your incubator does not require nearly so much attention, although good work can be done in most any location, but I would prefer a room on the north side of the house or where the changes in temperature is not too great. The trouble in operating incubators in warm weather above ground is the outside heat being too near the hatching point. The regulator will be of little use where the air after the first ten days the eggs generate a great deal of heat. Sometimes there is no danger of eggs over heating in warm weather with the lamp turned outside temperature is 85 or 90 degrees when the machine is full of live eggs, as low as it will burn, or without any lamp flame for that matter. In cases of this kind, the incubator will have to be opened frequently and the eggs aired so as to keep the heat down. If you are operating your machine in a basement or cellar you do not have any of this trouble. See that you have fairly good ventilation. Dampness cuts no figure. The incubator will hatch just as well if there is a running stream of water under it, if the air is good in the room.

Care of the Lamp.

Fill your lamp once a day. If your incubator is running in a cool place and takes nearly a full flame it might be well to look after the lamp twice a day, although this is seldom necessary. Clean your burner every day with a tooth brush. When putting your lamp back on the bracket be sure the lamp burner is properly closed so the lamp will not smoke nor the flame flicker. Whenever the flame flickers, that shows that something is wrong. Never turn on a full flame and go off and leave your lamp. The burner will become very hot and draw more oil and in a good many cases the flame will burn too high and cause it to smoke. After lighting a lamp when it is cool, always bear in mind that the blaze will burn much higher after it becomes warm. Use the best kerosene you can get. Do not use poor oil under any circumstances.

Turning and Cooling the Eggs.

After trying three or four dozen devices for turning eggs and all kinds

of patent egg trays, I have come to the conclusion that the plain wire trays are the best. It is necessary to take the eggs out of the machine to cool them and turning should be done at the same time. To turn the eggs remove about two rows from one end of the trays (after you test out you have room without taking any out) and lay them on something convenient, then take your hand and roll the rest of the eggs to that end. Now it is not necessary to mark the eggs to see if they are all turned. That is all bosh. Just roll them around every time take them out. You cool them twice a day, in fact it does not harm them to stir them up four or five times a day. Hens are rolling their eggs around every little while, but they do not pay any particular attention to turning them over every time, just shifting them in the nest. After turning, change places of your trays. The one nearest the lamp put in end farthest from the lamp, also change end for end should there be any difference in the heat of the egg chamber. This will overcome it to a large extent. No set rules can be laid down as to the length of time to cool eggs. I usually leave the thermometer on the eggs, with the bulb laying between two eggs. When the temperature goes down to 85 or 90 degrees I put the eggs back in the machine. If you are operating in a cool place the temperature will go down very quickly, but take plenty of time to turn your eggs. After turning eggs, sometimes the heat will rise and the regulator will blow off or, what I mean by that, the cap will raise from the heat flue before the temperature gets back to where it was before you turned the eggs. This is caused by the air in the incubator being warmer than the eggs. Eggs will soon warm up to the temperature of the air. If they should not in two or three hours, sometimes it is necessary to loosen the adjusting screw just a trifle and let the little cap down on the heat flue. This is never necessary unless you are operating incubators in a cool place. After chickens begin to hatch they will come toward the light, and fall to the nursery below. Leave them here until the hatch is over, but if they should seem too crowded and want to get out, take a few of the strongest ones out, but not over a dozen or two at a time, as when you remove chicks from the nursery the temperature of the machine is lowered, therefore you will have to turn on a trifle more heat. It does no harm to open the door once and a while when chicks are hatching, but do not leave it open until the chicks become chilled. Use judgment in cases of this kind.

What You Should Do in Case of an Accident.

It sometimes happens that the incubator tank will leak when you have a hatch in. Sometimes it will leak badly. After it leaks so the water will drop down it will make too much moisture and should be fixed. Now if your incubator is filled with eggs and your tank should leak from some unknown cause, which is very seldom, do not imagine your hatch is ruined. Remove the top of the incubator by taking out the screws and then remove the tank from the incubator. If you cannot do the soldering yourself take it to your nearest tinner. Cover the eggs up with a warm blanket. If operating the incubator in a very cool place put the eggs in some warm place in the house and cover with something warm. In my time I have had all kinds of experience with tanks that would leak and everything else. One incubator in a hundred might start to leaking. I just merely mentioned this so you would know what to do in case of an accident. I have had eggs out of a machine all day covered up and it did not seem to injure the hatch a particular. When you fill the tank fill it with hot soft water. At the end of every hatch you will probably want to add a pint of water to take the place of what evaporates.

Moisture and Ventilating.

I believe more chickens have died from putting moisture in the incubator than have been helped out of the shell by it, therefore I have settled the moisture question by leaving it out altogether and the results have been better than when moisture was used. For a number of years we never used but little moisture at the end of the hatch and that was not necessary. More ventilation is needed during warm weather than early in the spring.

After trying all kinds of ventilation schemes for years I have found out that just a two-inch hole in the top of the incubator with no other ventilation is the very best ventilation that you can get. Some will tell you that this is no ventilation at all, but it is just the same and from hundreds of experi-

ments I have settled on this mode of ventilation as being the best. Facts are what count. Theories amount to nothing.

In the spring time run the ventilators about one-third open the first week, the second week one-half open and the third week a little more than one-half unless the air cells seem to be getting larger on an average than the appear to be in the illustration. A general average has to be struck.

General Instructions.

If the machine is full of live eggs the last ten days of incubation the heat will have a tendency to run up, caused by the animal heat in the eggs; at such times the regulator will have to be adjusted a little every two or three days on any machine. In addition to cooling the eggs twice a day, I have had best results by opening the machine, pulling the trays out a little, and letting eggs cool down three or four degrees. In winter and early spring time they do not need so much cooling as in warm weather. In hatching eggs artificially we are imitating nature, and we should study nature's methods very closely; many a time I have watched old biddy and saw her standing up on the nest seven or eight days before the hatch was due. At that time the animal heat in the egg is very strong and the eggs have a tendency to overheat themselves, especially in warm weather; by natural instinct the hen knows when they need cooling.

Hints on Ventilation.—It is a fact well known to experienced operators that the greater the difference in the outside and inside temperature, the more air will pass through. As the air on the inside of the machine becomes hot, it will rise, expand, and be forced through the ventilator, while the cold air will rush in. Nature will not allow a vacuum; when the outside temperature is high, thus nearer the temperature inside, less artificial heat is needed, therefore the inside expansion will be decreased, and the rush of air through the ventilator lessened; therefore give more ventilation during warm weather than cold.

Testing Eggs.

Eggs should be tested on the tenth day and again on the fifteenth. The germ will then appear as a small black spot with veins radiating in all directions. On the tenth day addled eggs will look cloudy, detached black spots floating in the egg without any veins attached. As stated previously, the thermometer should be placed between

two fertile eggs after the tenth day, as an infertile egg will show two or three degrees less heat than a live one. Some incubator manufacturers say to test on the fourth or fifth day, but it takes an expert to test then and it does no harm to let them go until the tenth day. On the tenth day the experienced operator can tell at a glance whether they are fertile or not.

Brooder Directions.

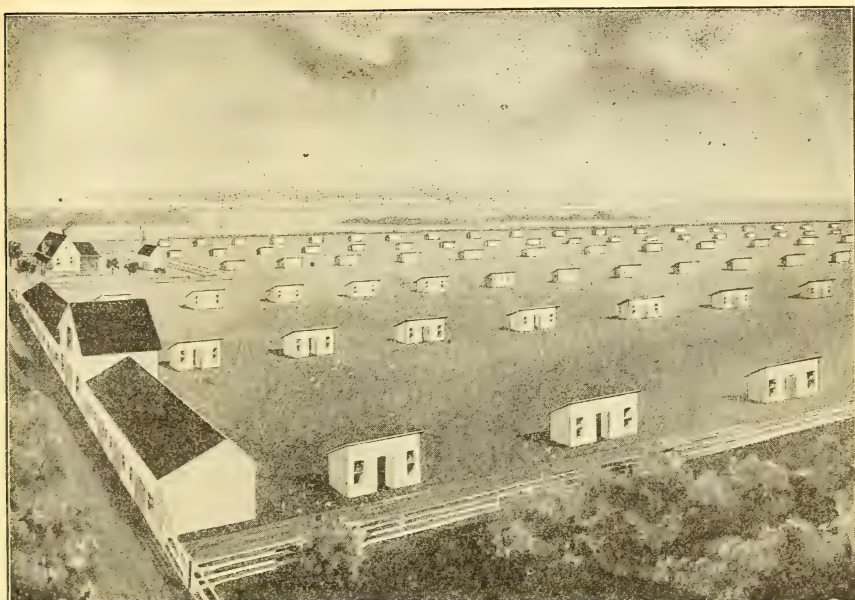
Now the place to operate your brooder would be in a small colony house or any out-building. We would much prefer to operate them there than out of doors, especially when the chickens are very young. About ten or twelve hours before you intend to remove the chicks from the incubator, I would start the lamp on the brooder. Burn a small blaze and be very careful and do not turn the lamp too high, for when the burner gets warm it will burn too high and become dangerous. Do not stop up the space between the door of the lamp box and floor. This space is left to give the lamp air. It must have plenty of fresh air or it will smoke. The proper temperature for the brooder is about 85 or 90 degrees when the chicks are young, but as they grow older decrease the temperature. When they are too warm they will open their mouths and pant. If too cold they will huddle up to the lamp. Give them plenty of ventilation. This can be done most effectively by raising the door slightly and putting something under it. Dry chaff is an excellent thing to use in the bottom of the brooder.

Now, in conclusion will say, be careful and do not turn your lamp up too high, either in the incubator or brooder and always remember when you light a cold lamp the blaze will burn much higher when it warms up.

BROILER RAISING ON A TOWN LOT.

On a town lot of one quarter of an acre there is nothing that could possibly bring the same returns as a 100-foot brooder house. Such a house would accommodate 1,000 chicks and the one-quarter acre of ground would give an abundance of ground for the chicks to get fresh air, exercise and a plenty of green food, such a plant should prove an excellent investment.

The care of the thousand broilers would not take more than half of a person's time, and the returns from the business would net much more than a comfortable living. Just figure out for yourself the fine returns that are assured from such an investment as this and if you know of anything that will prove a better way of investing a little money I would consider it a great favor if you would let me know of it.



A MODERN POULTRY FARM BUILT ON THE COLONY PLAN.

Egg Farming on the Colony Plan is Most Successful in Mild Climates.

Where the item of labor is concerned or where a person's time for caring for poultry is limited, the production of eggs as a specialty presents many attractions. Hens are well capable to look after themselves and can get along nicely with but little care on the part of their owner. When given free range they forage for themselves and the only work necessary in caring for them is to throw out a little feed once or twice a day and clean up the house once in a while and the birds will keep in good health and shell out eggs in abundance. Where birds are confined in close quarters it is of the utmost importance to spend much more time in caring for them and keeping their houses and yards scrupulously clean. A little neglect, that seemed at the time to be but of small consequence, where the so-called intensive poultry farming is carried on has often meant the loss of the best of the flock.

Where any one lives in a mild climate, and has lots of room and no near neighbors, I can recommend the colony plan. Its advantages being a great saving in feed and care, healthier stock and a much larger number of fertile eggs from said stock. The idea of keeping hens on the colony plan originated in Rhode Island and has been copied extensively in California with marked success, and there is no reason why it should not be more generally practiced in every part of our country. In northern states where heavy snow falls are a regular thing through the winter the plan would be hardly practical the year round. Rhode Island is known as a northern state but being on the coast

the climate is much more temperate than either western New York or western Massachusetts. In fact there is something about the air along the coast that seems to melt the snow about as fast as it falls. But to get back to the colony plan of keeping hens, to be more explicit, the birds are housed in small cheaphouses rarely over 100 square feet in the floor space. In a mild climate no floor would be necessary in these houses. Roosts, dropping boards, nests, water cans, grit and shell boxes and all other necessary appliances should be well kept off the ground so as to give the birds full floor space. It is an excellent plan to build their houses on two timbers for runners and then it is possible to move them to a new location at any time. They can be built similar to illustrations. Twenty to thirty hens can be kept in one of these houses according to whether they must be confined or not, the larger number would be all right as long as the climate allowed them to get out of doors every day in the year. When practiced on an extensive scale these houses are placed about fifty yards apart all over the farm. Feed and water being distributed from house to house twice a day from a wagon. In Rhode Island the colony poultry farmers call these wagons "dough carts," dough being their name for mash which with them generally constitutes one of the two feeds given daily. On these Rhode Island colony poultry farms one will often find a thousand or more hens on the same place in small flocks of not over thirty to a house. One who has not seen one of these colony poultry farms in operation, at first thought may think it extremely improbable for hens to keep to their own houses without being yarded, but it is a fact that with very few exceptions the birds will return to their own house at night no matter how far they may have wandered away during the day. To get them to know their own house it is only necessary to put a small temporary yard in front of a house when pullets are housed in the fall. By confining the birds to this yard for about two weeks they learn the location of their own house, and when given their liberty they will always return to it. If we would but take notice we would find this housing instinct in all wild animals; they each have their own particular place to go when seeking rest.

POULTRY POINTERS.

The natural food of the hen is grain, seeds, insects, bugs and green stuff, a pretty well balanced ration. If this kind of food is not supplied little success in egg-production will be obtained. When poultry is confined to small yards and cannot get nature's food, it must be supplied in the shape of animal meal, green cut bone, beef scraps or lean meat. Unless supplied with such food, the eggs will be small and poorly fertilized, nothing like eggs from good healthy hens that have free range.

The idea that nature will supply both food and shelter must be banished before the hen can be made profitable. Houses must be built, food must be given and water and grit must be supplied.

Men established different enterprises, spend thousands of dollars for stock, hundreds of dollars for advertising and feel rejoiced if at the end of the first year they come out even, and if in the second year they make interest on their investment they are satisfied. Yet let these same men buy land and start a poultry farm, and if they do not realize an enormous interest at once they grow tired and give up in despair.

A great many people will not stick long enough to one breed to know best how to bring out its good qualities. Or they are dividing up among so many breeds that they do not succeed with any and finally either conclude all they have are no good or that the whole chicken business is a failure, anyhow.

The pleasures of poultry keeping, the profits of the business, and the health of the stock, depend more upon the cleanliness of the premises than any other one thing. The practice of having the roosting-poles over the nests in the alley, having dropping boards to collect the offal, and infrequent cleanings, make the owner ashamed to take guests to the poultry houses, and the odor drives them away if they do go. Looking over ill smelling roosts disgusts the visitor, and he sees no beauty in the flock.

This is a good time to start your son or daughter in the poultry business. Let them care for the flock, market the produce and have the returns for their own spending. If they cannot get enough out of the flock to pay for their keep you inquire into the management and suggest the remedy, for poultry will pay if managed rightly.

One of the advantages in poultry production is that returns come quickly. With the exception of strawberries, there is practically no line of small fruits on which you can begin to realize inside of three years; a milch cow does not approach her full power of production short of three and a half years; apple trees do not begin to bear freely short of seven or eight years. How is it with the hen? Three weeks from the setting of the hen you have a batch of chickens; from four to four and a half months from hatching the cockerels are ready for the market, and in five to five and a half months the pullets will begin to lay.

Beginners often get discouraged, in competing with their neighbors for eggs, because they forget to take into consideration the respective breeds grown by themselves and their neighbors. Perhaps the neighbor raises the Leghorn, Black Spanish or other small breed, noted for its egg producing qualities, while the beginner has purchased a heavier breed, not specially noted for eggs. These heavier breeds are grown for other qualities as well as for the number of eggs. In comparing the different breeds you might just as well compare a draft horse with a trotter, and expect the work horse to travel as fast as the race horse.

Don't open the incubator to give the hatching chicks air because they seem to be gasping for breath. They are simply unaccustomed to breathing the free air and just after coming out of the shell they are very much like a fish out of water, and gasp for a little while. This fills their lungs and makes them strong.

On most farms, the receipts from poultry products are clear gain; but there are plenty of farmers throughout the northwest who can well afford to make poultry raising more than a mere incident or side issue. And more and more farmers are coming to realize this, to their profit.

Pullets can stand a little heavier feeding with corn and wheat than old hens can, but even pullets fatten much more readily than the young roosters do, so it is well not to feed very much corn to them, probably one-fourth corn, one-fourth wheat and half oats would make a good ration for layers at the present prices. Some will probably use mostly wheat, but we consider oats the best grain for egg production and prefer to have the ration at least half oats.

The male bird is half of the flock. A mistake in selecting in this respect is a mistake that reaches the whole season's output.

A good many people seem to think it requires some mysterious and hard-to-obtain knowledge to make a success of the poultry business. This is a mistake. It simply requires the exercise of good common sense and the industry that is necessary to success in any line of human endeavor.

One of the first things a beginner desires to know is which is the best breed for him to handle. It would appear to him that this ought to be an easy question to answer, and yet it is one that can hardly be answered by even the veteran breeder. It is no nearer a solution now than it was a score of years ago. It probably never will be answered satisfactorily to all breeders. It is very readily seen that the breed that would be best for one person or one locality would be wholly unsuited for another. For this reason the person, the environments, the climate and the market conditions must be factors in determining which is the best breed.

The Mediterranean class has become much more popular than it was a few years ago. People are learning that eggs are a profitable crop to produce.

Damaged grain is the most expensive food we can give our hens. Green food

we must have every day in the year, unless the yards are large enough to be kept in grass during the growing season. Meat must be fed every day for best results.

If furnishing eggs for table use is your branch of the poultry business, there is no need of having males in the flock. In fact, it is better to have none. It saves feed; it saves worry of the hens.

The beginning who has plenty of ambition, determination and pluck will succeed in the business if he stays by it. He should not go off after strange gods, nor jump at conclusions, nor engage in gigantic schemes, or let himself be led by "get rich quick" schemes. A good beginning is essential and this need not necessarily result in a bad ending. A gradual beginning is most often prolific of good results.

Poultry and Eggs Are Cash.

Anything that brings cash returns every day in the year assists the farmer in passing over the long period from harvest to harvest. A crop of wheat brings returns at a certain period of the year. The principal source of cash on many farms in the winter season is the poultry. The basket of eggs that goes to market always brings cash, and in the year of the owners. Feed them well in winter, and they will respond to the good treatment. Eggs brought good prices last winter, and gave more profit in proportion to the cost of materials entering into their composition than any other animal production on farms.

A hen is not, as some people seem to suppose, a machine that is capable of manufacturing something for nothing.

Wheat contains a larger per cent of albumen than any other grain and for this reason it is one of the best grains to feed for egg production. It should not be made an exclusive ration, however.

Bowel trouble that carries off many chicks when one or two weeks old may be often corrected and taking away their drinking water and giving scalded milk instead.

Did you ever notice that usually there is a well bred and well cared for flock of poultry on a paying farm. Is there any connection between these two facts?

How Much Profit?

Most of the experienced poultrymen estimate that each hen will afford a profit of two dollars a year. This may seem small to some, but it means after the interest on capital, food and other cash expenses are paid. It is really a large profit, as most of the hens are not valued at more than half that sum each, and with a flock of fifteen hens it represents the interest of five hundred dollars at six per cent. When we take into consideration the fact that on most farms the actual capital invested in poultry is very small, the profit from the hens is usually quite large.

The egg industry of the United States is still growing. Ten years ago we imported many eggs and exported few. Now the exports exceed the imports, but there is room for still greater development. There need be no fear of over-production of poultry and eggs in the near future.

Make little gullies around upper side of coops located on steep slopes, so the rain will not wash into them. See that these little ditches are kept clean.

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